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A Method for Computing The Generalized Circular Error Function and the Circular Coverage Function

by

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ABSTRACT

This paper describes an efficient method for the numerical evaluation by a high speed digital computer of: the integral of an uncorrelated elliptical Gaussian distribution over a circle centered at the mean of the distribution, $I(K,c)$; the integral of a circular Gaussian distribution over a circle offset from the mean of the distribution, $P(K,d)$.

The methods are programmed for both the NORC and the IBM 7090. They yield 6 decimal digit accuracy with an average computation time of 10 milliseconds per case on NORC and 6 milliseconds on the 7090.

Two extensive inverse tables are included. One gives the radius K as a function of I and c, and the other gives the radius K as a function of P and d.

FOREWORD

The work which is covered by this report was performed in the Applied Mathematics Branch under a project established at the Naval Weapons Laboratory by the Special Projects Office of the Bureau of Naval Weapons under Special Projects Allotment No. 105. The date of completion was 28 June 1961.

The authors wish to thank Mr. David Eliezer and Mr. Robert Belsky, who programmed and coded the editing procedure for setting up the complete tables, and Mr. Robert Gramp, who programmed and coded the method of computing $I(k,c)$ and $P(k,d)$ for the IBM 7090.

Released under the authority of:

/s/ R. H. LYDDANE
Technical Director

I. INTRODUCTION

A problem that often arises in applications of statistical theory is that of evaluating the integral over a circle offset from the origin with center (h,k) and radius $\bar{R}$ of an uncorrelated bivariate normal distribution with its mean point at the origin and standard deviations σ_x and σ_y in the x and y directions respectively, Oxy being a rectangular cartesian coordinate system.

In problems of military operations research, as discussed in detail in [8], this integral represents the kill probability, or probability of damage (depending on whether the criterion of interest is total destruction or infliction of a stated degree of damage) of a point target, by a single weapon (projectile, bomb, etc.), in the case in which the distribution of shots is as stated above and the target is at (h,k). In the terminology of [8], $\bar{R}$ is the damage radius of the weapon relative to the target, and the conditional damage function is the "cookie-cutter" function. The assumption is made that the probability of damage (total or of preassigned degree) is unity for impact points (x,y) within the circle of radius $\bar{R}$ and center (h,k) and is zero for impact points outside this circle.

While it is clear that the adoption of the "cookie-cutter" conditional damage function is an idealization, it nevertheless often serves as a very useful approximation to reality. This idealization has been assumed in many studies involving either the distribution described above or one of its special cases as discussed below, and has been used in a number of published tables, for example, [2], [3], [4], [6], [9], [11], [12], [13], [14]. Other types of conditional damage functions are discussed in [8].

This probability can be written in rectangular coordinates as

$$P\left(\frac{\bar{R}}{\sigma_x}, \frac{\bar{R}}{\sigma_y}, \frac{h}{\sigma_x}, \frac{k}{\sigma_y}\right) = \frac{1}{2\pi\sigma_x\sigma_y}\int_{h-\bar{R}}^{h+\bar{R}}\int_{k-\sqrt{\bar{R}^2-(x-h)^2}}^{k+\sqrt{\bar{R}^2-(x-h)^2}} \exp\left\{-\frac{1}{2}\left[\left(\frac{x}{\sigma_x}\right)^2+\left(\frac{y}{\sigma_y}\right)^2\right]\right\}dxdy \qquad (1)$$

In polar coordinates, equation (1) becomes

$$P\left(\frac{\bar{K}}{\sigma_x}, \frac{\bar{K}}{\sigma_y}, \frac{h}{\sigma_x}, \frac{k}{\sigma_y}\right) = \frac{1}{2\pi\sigma_x\sigma_y}\int_o^{\bar{K}}\int_o^{2\pi} \exp\left\{-\frac{1}{2}\left[\left(\frac{h+r\cos\theta}{\sigma_x}\right)^2 + \left(\frac{k+r\sin\theta}{\sigma_y}\right)^2\right]\right\} r\,dr\,d\theta \quad (2)$$

where

$$x-h = r\cos\theta, \quad y-k = r\sin\theta, \qquad 0 \leq r \leq \bar{K}, \quad 0 \leq \theta \leq 2\pi. \quad (3)$$

The integral in this form is, in general, not integrable analytically. Its numerical evaluation however can be accomplished efficiently by a method of quadrature. The procedure is described in NWL Report # 1710, [12], and in [15].

Two particular cases of the integral given above are specified by

(1) setting h and k equal to zero, (See Appendix D, page 1).
(2) setting σ_x equal to σ_y, (See Appendix E, page 1).

In both cases the resultant integral is amenable to evaluation by computing terms of a Taylor series or of an asymptotic expansion. The purpose of this report is to exhibit these series, in terms of recurrence relations, and to describe their application towards an efficient numerical calculation of the integral in each of these two special cases.

II. BASIC EQUATIONS

If h and k are set equal to zero, then equation (2) reduces to

$$P\left(\frac{\bar{K}}{\sigma_x}, \frac{\bar{K}}{\sigma_y}, 0, 0\right) \quad P(K, c) = \frac{1}{\pi c}\int_o^{K}\int_o^{\pi} \exp\left\{-\frac{1}{2}r^2[B + A\cos\theta]\right\} r\,dr\,d\theta \quad (4)$$

where

$$0 \leq c = \frac{\sigma_y}{\sigma_x} \leq 1 \qquad K = \frac{\bar{K}}{\sigma_x} \quad (5)$$

$$A = \frac{1-c^2}{2c^2} \qquad B = \frac{1+c^2}{2c^2} \quad (6)$$

If σ_x is equal to σ_y, then equation (2) becomes

$$P\left(\frac{\bar{R}}{\sigma_x}, \frac{\bar{R}}{\sigma_x}, \frac{h}{\sigma_x}, \frac{k}{\sigma_x}\right) \equiv P(K, d) = \frac{1}{2\pi}\int_o^K \int_o^{2\pi} \exp\left\{-\frac{1}{2}\left[(d + r\cos\theta)^2 + r^2 \sin^2\theta\right]\right\} r dr d\theta \quad (7)$$

where the symbol $P(K, d)$ indicates that P is a function of only two variables, K and d. The definitions of K and d^2 are:

$$K \equiv \bar{R}/\sigma_x \qquad d^2 \equiv \frac{h^2 + k^2}{\sigma_x^2} \quad (8)$$

Since σ_x and σ_y are equal, the distribution is circular, the circle of integration may always be taken as offset along the x axis as indicated by equation (7). $P(K, d)$ is known as the circular coverage function. Equations (4) and (7) can also be written in the following form:

$$P(K, c) = \frac{1}{c}\int_o^K \exp\left(-\frac{B}{2}r^2\right) I_o\left(\frac{Ar^2}{2}\right) r dr \quad (9)$$

$$P(K, d) = \exp(-d^2/2)\int_o^k \exp(-r^2/2)\, I_o(rd)\, r dr \quad (10)$$

where $I_o(x)$ is known as the modified Bessel function of the first kind of zeroth order. This function can be defined by the integral relation

$$I_o(x) \quad \frac{1}{\pi}\int_o^\pi \exp(x\cos\theta)\, d\theta \quad (11)$$

or by its Maclaurin expansion as given in equation (23) below, (see [5]).

If $d = 0$ in equation (10), the integral reduces to

$\int_o^K \exp(-r^2/2) r dr$, since $I_o(0) = 1$ (put $x = 0$ in equation (23) in section V).

If $c = 1$ in equation (9), then $A = 0$, $B = 1$, from equations (6), and the integral becomes $\int_o^K \exp(-r^2/2) r dr$. These integrals are evaluated

analytically in the forms $[\ 1 - \exp(-K^2/2)\ ]$ and $[\ 1 - \exp(-K^2/2)\ ]$ respectively. These special cases were pointed out by Germond in [4] (for $P(K,d)$) and Esperti in [2] and Fettis in [3] (for $V(K,c)$). Another special case which can be mentioned here, although it requires the use of an equation of Section IV, is that in which $K = d$ in the circular coverage function. In this case the V term in equation (18) vanishes, and $P(K,d)$ is given analytically in terms of an exponential and a Bessel function. This was also pointed out by Germond in [4].

These special cases, however, do not require any modifications of the computing programs herein described. For the case $c = 1$ in the $V(K,c)$ function, see the analysis following equation (36) in Section V. The case $d = 0$ is analogous in the $P(K,d)$ function, in view of relation (74) in Section VI, and can be analyzed similarly, but the details are not given in this report. For the case $K = d$ in the $P(K,d)$ function, see the analysis following equation (95) in Section VI.

If $c = 0$ in the $V(K,c)$ function, implying that $\sigma_y = c\sigma_x = 0$ (see equations (5)),the distribution is not a bivariate or planar one, and the integrals in equations (1), (2), (4) and (9) cannot be evaluated as they stand, A and B of equations (6) being undefined. Nevertheless, for very small c, the $V(K,c)$ function is approximated by a one-dimensional probability integral

$$Erf(K/\sqrt{2}) = \frac{2}{\sqrt{\pi}} \int_0^{K/\sqrt{2}} \exp(-y^2)\, dy$$

(see appendix B). It can be proved rigorously that $V(K,c)$ tends uniformly to $Erf(K/\sqrt{2})$ for $0 < K < \infty$ as c tends to zero; that is, for arbitrary $\epsilon > 0$, there exists a number $c_o (0 < c_o < 1)$, depending only on ϵ, such that $0 < Erf(K/\sqrt{2}) - V(K,c) < \epsilon$ for all c such that $0 < c < c_o$ and all positive K. Thus $V(K,0)$ may be consistently defined as $Erf(K/\sqrt{2})$. Fettis in equation (I-17) of [3] states an equivalent result. Moreover, if $V(K,0)$ is defined in this way, it is computed by the regular procedure described in Sections V and VI, and hence need not be regarded as a special case from the computational point of view. See footnote to equation (50).

The quantities $\partial V/\partial K$, and $\partial P/\partial K$ are used for the inverse

table computations which are discussed in Section VII; they are given by:

$$\frac{\partial V}{\partial K} = \frac{K}{c} \exp\left(-BK^2/2\right)\ I_0\left(\frac{AK^2}{2}\right) \tag{12}$$

$$\frac{\partial P}{\partial R} = R \exp\left(-\frac{R^2 + d^2}{2}\right)\ I_0(Rd) \tag{13}$$

III. BACKGROUND

An extensive table of K as a function of V and c had been computed on NORC, at the request of Dr. H. Weingarten, Special Projects Office, Washington, D. C., using the methods advocated herein [10], [11] For this report that inverse table has been extended from five to six tabulated decimal digits of K for

$$V = 0.01(0.01)0.99$$
$$c = 0(0.01)1.00 \tag{14}$$

and the table has also been supplemented with an extension of the variable V from 0.99 to 0.999999 such that

$$V = .9900(.0005).9990(.0001).9999(.00001).99999(.000001).999999$$
$$c = 0,\ c = 0.10(0.05)\ 1.00 \tag{14a}$$

This table is given in Appendix D with a corresponding inverse table for the circular coverage function, $P(R, d)$ in Appendix E. This $P(R, d)$ table is given by a tabulation of R as a function of P and d. Both tables are correct to within one unit in the last digit given. The ranges of P and d are as follows:

$$P = 0.01(0.01)0.99$$
$$d = 0(0.1)5(0.2)10(2)20(5)120 \tag{15}$$

and

$$P = .9900(.0005).9990(.0001).9999(.00001).99999(.000001).999999$$
$$d = 0, .05, .10, .25, .50, .75, 1, 1.5, 2, 3, 4, 5, 6, 8, 10, 20, 30, 50, 80, 120 \tag{15a}$$

Recently, L. Harter [6] published a table of $V(K, c)$ versus K and c and an associated small inverse table of K as a function of V and c. His approach however is limited since the quadrature method he uses breaks down or requires a prohibitively large number of integration intervals for values of c near zero. Furthermore it is not efficient because it is not known a priori how many integration intervals will be required for a given input. Neither of these deficiencies is present in the program to be described.

The equations described for $V(K, c)$ had been worked out a few years ago by one of the authors of [11] and independently by others, [2], [3]. The success of the method for computing $V(K, c)$ by these equations warranted considerations of extending the technique to the $P(h, d)$ function. This was easily possible because of the existence of a functional relationship between $P(K, d)$ and $V(K, c)$ established in equation (18) of the next section. This relationship is derived by H. E. Fettis in reference [3]; however its use was reported by him for a somewhat different purpose than to develop an improved technique for computing $P(h, d)$. The merit of the extended analysis included herein is the greatly increased speed and accuracy attainable in the computation of the circular coverage function, $P(h, d)$, relative to other existing methods, by the use of Fettis' relation. The capable speed and accuracy of the computing program for $P(h, d)$, as well as $V(K, c)$, is manifested by the two inverse tables mentioned above. Each table required the computation of approximately 45, 000 $P(K, d)$, or $V(K, c)$, functions to an accuracy of seven or more decimal digits. The NORC computing time for each table was less than eight minutes.

IV. RELATIONSHIP BETWEEN $P(K, d)$ AND $V(K, c)$

The relationship between P and V can be derived by utilizing two of Fettis' preliminary results which are given in terms of $q \equiv 1 - P$ in equations (I - 35) and (I -44) in [3]. They are given in terms of P as:

$$P(K, d) - P(d, h) = \pm V\left(|K - d|, \frac{|h - d|}{K + d}\right) \qquad \begin{matrix}(+)\ K > d \\ (-)\ h < d\end{matrix} \tag{16}$$

$$P(K, d) + P(d, h) = 1 - e^{-\frac{K^2 + d^2}{2}} I_0(Kd) \tag{17}$$

Equation (17) is easily derived; the origin of equation (16), which is given by Fettis in a slightly different notation, is unknown to the authors.

It follows, by adding equations (16) and (17), that *

$$P(h,d) = \frac{1}{2}\left\{1 - e^{-\frac{K^2+d^2}{2}} I_0(Kd) \pm \Gamma\left(|K-d|, \frac{|h-d|}{K+d}\right)\right\} \begin{matrix}(+)\ K > d \\ (-)\ K < d\end{matrix} \qquad (18)$$

Thus a value of the relationship, as given by equation (18), is that if an efficient computing program exists for computing the $\Gamma(K,c)$ function, then an efficient computing program can also be realized for computing the circular coverage function. The basic features of a computing program will be presented in Section VI whereby $\Gamma(K,c)$ is computed directly and $P(K,d)$ with the aid of equation (18).

V. RECURRENCE RELATIONS FOR $\Gamma(K,c)$ AND $\partial\Gamma/\partial K$

The function $\partial\Gamma/\partial K$ is necessary for computing the inverse function $K(\Gamma,c)$ by a Newton-Raphson procedure (See Appendix C). The function $\partial\Gamma/\partial K$ can also be conveniently computed simultaneously with Γ; therefore relations for both functions, Γ and $\partial\Gamma/\partial K$, are developed in this section.

A few simple linear transformations and the substitution indicated by equation (11) reduce the integral of equation (4) to

$$\Gamma(K,c) = \frac{2}{Ac}\int_0^{AK^2/4} \exp\left[-2\frac{B}{A}w\right] I_0(2w)\,dw \qquad (19)$$

Then

$$\left(\frac{1}{BK}\right)\frac{\partial\Gamma}{\partial K} = \frac{2c}{1+c^2}\, e^{-BK^2/2}\ I_0(AK^2/2) \qquad (20)$$

---

* Guenther recently (see equation (2) in [16]) derived an equation for $P(h,d)$ in terms of $I_0(x)$ and the incomplete gamma function, which can be shown to be equivalent to equation (18) of the present report. However, he did not exploit his relationship from the point of view of developing an efficient program for a high speed digital computer.

Furthermore, the following relation

$$\frac{1}{Ac}\int_o^\infty \exp\left[-\frac{B}{A}w\right] I_o(w)\,dw = \frac{1}{Ac}\frac{1}{\sqrt{(B/A)^2-1}} = 1 \tag{21}$$

(see page 76, Example 14, of [5]) is used, with a linear transformation on w, to write equation (19) in the following form

$$V(K,c) = 1 - \frac{1}{2Ac}\int_{AK^2}^\infty \exp\left[-\frac{B}{2A}w\right] I_o\left(\frac{w}{2}\right) dw \tag{22}$$

The properties of $I_o(x)$ are classical and are exemplified by the series expansion definition:

$$I_o(x) = \sum_{n=o}^\infty \left(\frac{1}{n!}\right)^2 \left(\frac{x}{2}\right)^{2n} \tag{23}$$

which is uniformly convergent on any finite interval of x. A semi-convergent or asymptotic series expansion for $I_o(x)$ is given by:

$$I_o(x) \sim \frac{\exp(x)}{\sqrt{2\pi x}} \sum_{n=o}^N \frac{[(2n)!]^2}{2^{4n}(n!)^3}(2x)^{-n} \tag{24}$$

i.e., the right hand side of equation (24) represents $I_o(x)$ only for sufficiently large values of x and finite N. The extremum values of x and N are determined whenever the precision desired in $I_o(x)$ is specified, (See Appendix (A) for further comment).

The integration of equations (19) and (22) is accomplished by substituting the series given by equations (23) and (24) respectively, with proper substitutions for x, in terms of w, and subsequently integrating each resulting series term by term on w. Thus

$$V(K,c) = \frac{2}{Ac}\sum_{n=o}^\infty \left(\frac{1}{n!}\right)^2 \int_o^{AK^2/4} \exp\left(-2\frac{B}{A}w\right) w^{2n}\,dw = \sum_{n=o}^\infty T_{2n} \tag{25}$$

$$V(K,c) \sim 1 - \frac{1}{2Ac\sqrt{\pi}} \sum_{n=o}^N \frac{[(2n)!]^2}{2^{4n}(n!)^3} \int_{AK^2}^\infty \exp\left(-\frac{1}{2A}w\right) w^{-\left(\frac{2n+1}{2}\right)}\,dw = 1 - \sum_{n=o}^N M_{2n+1} \tag{26}$$

The term by term integration of the series which results in equation (25) is justified by application of the Weierstrass "M" test, since the series before integration is bounded by $I_0(AK^2/2)$ for all finite values of $AK^2/2$, i. e.,

$$\sum_{n=o}^{\infty} f_n(w) \equiv \sum_{n=o}^{\infty} \exp(-2Bw/A) \left(\frac{1}{n!}\right)^2 w^{2n} \leqq \sum_{n=o}^{\infty} \left(\frac{1}{n!}\right)^2 \left(\frac{AK^2}{4}\right)^{2n} = I_o\left(\frac{AK^2}{2}\right) \qquad (27)$$

for all w on $[0, AK^2/4]$.

The term by term integration resulting in equation (26) is also justified for all values of AK^2 for which the relation (22) is valid, because of the existence of the integral given in equation (22), (See page 17 of [1]).

The explicit computation of each term, after the first, in the series of equation (25) is achieved rapidly and accurately through the use of recurrence relations. Let

$$t_{2n} = \int_o^{AK^2/4} \exp\left(-2\frac{B}{A}w\right) w^{2n}\, dw \qquad n \geqq o \qquad (28)$$

A repeated integration by parts leads to

$$t_{2n} = \frac{A}{2B}\left[2n(2n-1)\frac{A}{2B}t_{2n-2} - \left(\frac{AK^2}{4} + \frac{nA}{B}\right)\left(\frac{AK^2}{4}\right)^{2n-1} e^{-BK^2/2}\right] \qquad n \geqq 1 \qquad (29)$$

The terms T_{2n} , that appear in equation (25), can now be identified as

$$T_{2n} = \frac{2}{Ac}\left(\frac{1}{n!}\right)^2 t_{2n} \qquad (30)$$

If the function $I_0(AK^2/2)$ is replaced by its series representation as given by equation (23), the individual terms of the resulting series in equation (20) are given by

$$S_{2n} = \left(\frac{AK^2}{4n}\right)^2 S_{2n-2} = \frac{1}{Bc}\left(\frac{1}{n!}\right)^2 \left(\frac{AK^2}{4}\right)^{2n} \exp(-BK^2/2) \qquad n \geqq 1 \qquad (31)$$

$$S_o = \frac{2c}{1+c^2} \exp(-BK^2/2) \tag{32}$$

where

$$\sum_{n=o}^{\infty} S_{2n} = \frac{2c}{1+c^2} I_o\left(\frac{AK^2}{2}\right) \exp(-BK^2/2) \tag{33}$$

Substituting the expression for t_{2n} from equation (29) into equation (30) and using equation (31), it can be shown that

$$T_{2n} = \left(\frac{2n-1}{2n}\right)\left(\frac{1-c^2}{1+c^2}\right)^2 T_{2n-2} - \left(1+\frac{4n}{BK^2}\right)S_{2n} \qquad n \geq 1 \tag{34}$$

The initial term for $n = 0$ follows directly from equations (28) and (30)

$$T_o = \frac{2c}{1+c^2}[1 - \exp(-BK^2/2)] = \frac{2c}{1+c^2} - S_o \tag{35}$$

One may observe that if the sum given by equation (33) is accumulated as one computes V then

$$\frac{\partial V}{\partial K} = BK \sum_{n=o}^{\infty} S_{2n} \tag{36}$$

In the case $c = 1$, which was mentioned in Section II, $A = 0$ and $B = 1$ by equations (6). Then $S_o = \exp(-K^2/2)$ and $T_o = 1 - \exp(-K^2/2)$, by equations (32) and (35). It is seen from equation (31) that all the S's except S_o vanish (since $A = 0$) and then from equation (34) that all the T's except T_o vanish (since $1 - c^2 = 0$). Equations (25) and (36) then give

$$V(K, 1) = T_o = 1 - \exp(-K^2/2) . \qquad \partial V(K, 1)/\partial K = K \exp(-K^2/2)$$

respectively, which are the correct values for this case ($c = 1$). Thus no modification of the computing program is required for this case.

The explicit evaluation of each term of the series in equation (26) can also be accomplished efficiently by suitable recurrence relations. Let

$$L_{2n+1} = \int_{AK^2}^{\infty} \exp(-w/2A)\, w^{-\left(\frac{2n+1}{2}\right)}\, dw \qquad (n \geq 0) \tag{37}$$

An integration by parts yields

$$L_{2n+1} = \frac{2}{2n-1}\left\{(AK^2)^{-\left(\frac{2n-1}{2}\right)} e^{-K^2/2} - \frac{1}{2A} L_{2n-1}\right\} \qquad (n \geq 1) \qquad (38)$$

By incorporating equation (38) with equation (26), it follows that

$$W_{2n+1} = \frac{1}{2A\,c\sqrt{\pi}} \frac{[(2n)!]^2}{2^{4n}(n!)^3} L_{2n+1} \qquad (n \geq 0) \qquad (39)$$

where

$$L_1 = \int_{AK^2}^{\infty} \exp(-w/2A)\, w^{-1/2}\, dw \qquad (40)$$

The substitution

$$y = \sqrt{w/2A} \qquad (41)$$

transforms the integral in equation (40) to

$$L_1 = 2\sqrt{2A} \int_{\frac{K}{\sqrt{2}}}^{\infty} \exp(-y^2)\, dy \qquad (42)$$

If one considers the equation

$$(1-c^2)\frac{\partial V}{\partial K} = \frac{K}{c}(1-c^2)\, e^{-BK^2/2}\, I_0\left(\frac{AK^2}{2}\right) \qquad (43)$$

and replaces the function $I_0\left(\frac{AK^2}{2}\right)$ by its asymptotic expansion as given by equation (24), then the individual terms of the resulting series for $(1-c^2)\frac{\partial V}{\partial K}$ are given by

$$N_{2n+1} = \left(\frac{2n-1}{1-c^2}\right)\left(\frac{c}{K}\right)^2\left(\frac{2n-1}{2n}\right) N_{2n-1} \qquad (n \geq 1) \qquad (44)$$

where

$$N_1 = \sqrt{\frac{1-c^2}{2}}\,\frac{2}{\sqrt{\pi}}\, e^{-K^2/2} \qquad (45)$$

and

$$\frac{\partial V}{\partial K} \sim \frac{1}{1-c^2} \sum_{n=o}^{N} X_{2n+1} \tag{46}$$

Furthermore, it is advantageous from a computational standpoint to introduce another function, Y_{2n-1}, which is related to X_{2n+1} by the following:

$$X_{2n+1} = (2n-1)\, Y_{2n-1} = \sqrt{\frac{1-c^2}{2}}\, \frac{[(2n)!]^2}{2^{4n}(n!)^3} \left(AK^2\right)^{-n} \frac{2}{\sqrt{\pi}} \exp(-K^2/2) \qquad (n \geq 1) \tag{47}$$

such that

$$Y_{2n-1} = \left(\frac{1}{1-c^2}\right) \left(\frac{c}{K}\right)^2 \left(\frac{2n-1}{2n}\right) X_{2n-1} \qquad (n \geq 1) \tag{48}$$

Replacing L_{2n+1} and L_{2n-1} in equation (38) by their expressions in terms of the corresponding M_{2n+1} and M_{2n-1} from equation (39), simplifying, and using equation (47) leads to the following recurrence relation:

$$M_{2n+1} = \frac{K}{1-c^2}\, Y_{2n-1} - \frac{c^2}{1-c^2} \left(\frac{2n-1}{2n}\right) M_{2n-1} \qquad n \geq 1 \tag{49}$$

If equations (39) and (42) are combined, an initial term ($n = 1$) of equation (49) is given by

$$M_1 = \frac{1}{\sqrt{1-c^2}}\, \frac{2}{\sqrt{\pi}} \int_{K/\sqrt{2}}^{\infty} \exp(-y^2)\, dy\,; \tag{50}$$

---

* The initial term M_1 as given in equation (50) can be written as

$$M_1 = \frac{1}{\sqrt{1-c^2}} [\, 1 - Erf(K/\sqrt{2})\,]$$

The computation of the Erf function and its derivative, given by

$$Erf'(x) = \frac{2}{\sqrt{\pi}}\, e^{-x^2},$$

on NORC, is done by subroutines designed by Dr. A. V. Hershey which restrict the error to the thirteenth digit. A faster method for computing $Erf(x)$ and $Erf'(x)$ at a sacrifice in available internal machine storage

the other initial term of equation (49) is obtained by setting n equal to one in equation (48) so that

$$Y_1 = \frac{1}{1-c^2}\left(\frac{c}{K}\right)^2\left(\frac{1}{2}\right)X_1 \tag{51}$$

The necessary recurrence relations that will be required for computing $P(K,d)$ and $\partial P/\partial K$ from equation (18) and (13) respectively can be derived from those already given for $V(K,c)$ by appropriate interpretation of the variables. This will be shown explicitly in the next section wherein the order in which the relations are used will be described for $P(K,d)$, $\partial P/\partial K$ as well as $V(K,c)$, $\partial V/\partial K$.

VI. COMPUTING PROGRAM FOR $V(K,c)$ AND $P(K,d)$

A) Program A

1. Operation:

Program A is used to compute the probability function $V(K,c)$ from given values of $K > 0$ and $0 \leq c \leq 1$. Simultaneously with the computation of V the function $\partial V/\partial K$ is also computed, although it is not available as a direct output quantity of the routine.

2. Formulation:

$V(K,c)$ is computed from equation (25) and $\partial V/\partial K$ from equation (36) if

$$AK^2 \leq M$$

---

locations is given in Appendix B. The method of Appendix B is used in conjunction with the IBM 7090 program for computing V and P. If $c = 0$, $K > 0$, this equation for W_1 gives $W_1 = 1 - Erf(K/\sqrt{2})$, and it is seen from equation (48) that Y_1 and all subsequent Y's vanish, and hence from equation (49) that all the W's after W_1 also vanish. Then equation (26) gives $V(K,0) = 1 - W_1 = Erf(K/\sqrt{2})$. This justifies the statement in Section II that $V(K,0)$, if defined as $Erf(K/\sqrt{2})$, is computed by the regular procedure and need not be regarded as a special case.

If $$AK^2 > M$$

then $V(K, c)$ and $\partial V / \partial K$ are computed from equations (26) and (46) respectively. The choice of M is discussed in Appendix (A).

If $$AK^2 \leqq M$$

the evaluation of equations (25) and (36) is started with the following initial values:

$$n = 0 \qquad \sum = 0 \qquad \sum' = 0 \tag{52}$$

$$S_o = \frac{2c}{1 + c^2} \exp(-BK^2/2) \qquad T_o = \left[\frac{2c}{1 + c^2} - S_o\right] \tag{53}$$

The steps in the iteration are given by

$$2n + 2 \rightarrow 2n \tag{54}$$

$$\left(\frac{AK^2}{4n}\right)^2 S_{2n-2} \rightarrow S_{2n} \tag{55}$$

$$\left(\frac{1 - c^2}{1 + c^2}\right)^2 \left(\frac{2n - 1}{2n}\right) T_{2n-2} - \left(1 + \frac{4n}{BK^2}\right) S_{2n} \rightarrow T_{2n} \tag{56}$$

$$\sum + T_{2n} \rightarrow \sum \tag{57}$$

$$\sum' + S_{2n} \rightarrow \sum' \tag{58}$$

The iteration is recycled until

$$\left.\begin{aligned} S_{2n} &\leqq \epsilon = 10^{-j} \\ T_{2n} &\leqq \epsilon = 10^{-j} \end{aligned}\right\} \tag{59}$$

where j is a positive number. The final results are given by

$$V(K,c) \sim T_o + \sum \tag{60}$$

$$\partial V/\partial K \sim BK\left[S_o + \sum'\right] \tag{61}$$

If $$AK^2 > M \tag{61I}$$

the evaluation of equations (26) and (46) is started with the following initial values:

$$n = 0 \qquad \sum = 0 \qquad \sum' = 0 \tag{62}$$

$$X_1 = \sqrt{\frac{1-c^2}{2}}\ \frac{2}{\sqrt{\pi}}\ \exp(-K^2/2), \qquad W_1 = \frac{1}{\sqrt{1-c^2}}\ \frac{2}{\sqrt{\pi}} \int_{K/\sqrt{2}}^{\infty} \exp(-y^2)\,dy \tag{63}$$

The steps in the iteration are given by the following recurrence relations:

$$2n+2 \rightarrow 2n \tag{64}$$

$$\frac{1}{1-c^2}\left(\frac{c}{K}\right)^2\left(\frac{2n-1}{2n}\right) X_{2n-1} \rightarrow Y_{2n-1} \tag{65}$$

$$\frac{K}{1-c^2}\ Y_{2n-1} - \frac{c^2}{1-c^2}\left(\frac{2n-1}{2n}\right) W_{2n-1} \rightarrow W_{2n+1} \tag{66}$$

$$(2n-1)\,Y_{2n-1} \rightarrow X_{2n+1} \tag{67}$$

$$\sum + W_{2n+1} \rightarrow \sum \tag{68}$$

$$\sum' + X_{2n+1} \rightarrow \sum' \tag{69}$$

The iteration is recycled until

$$\left.\begin{aligned} X_{2n+1} &\leq \epsilon = 10^{-j} \\ W_{2n+1} &\leq \epsilon = 10^{-j} \end{aligned}\right\} \tag{70}$$

The probability function and its derivative are finally given by

$$V(K,c)\sim(1-M_1)-\sum \tag{71}$$

$$\partial V/\partial K\sim\left(\frac{1}{1-c^2}\right)\left[X_1+\sum'\right] \tag{72}$$

B) Program B.

1. Operation:

Program B is used to compute the probability function $P(K,d)$, and $\partial P/\partial K$ from given input values of $K>0$, $d\geqq 0$.

2. Formulation:

$P(K,d)$, $\frac{\partial P}{\partial K}$ are computed from equation (18) and (13) respectively. The recurrence relations for the quantities $I_0(Kd)$, $I\left(|K-d|, \frac{|K-d|}{K+d}\right)$ which appear are easily obtained by the following substitutions:

$$|K-d|\rightarrow K \tag{73}$$

$$\frac{|K-d|}{K+d}\rightarrow c \tag{74}$$

Then if

$$2Kd\rightarrow AK^2\leqq M \tag{74I}$$

the evaluation of equations (25), (33), (18), (13) is started with the following initial values

$$n=0 \qquad \sum=0 \qquad \sum'=0 \tag{75}$$

$$\bar{S}_o = \exp\left(-\frac{R^2 + d^2}{2}\right)^{*}, \qquad T_o = \left(\frac{|R^2 - d^2|}{R^2 + d^2}\right)\left[1 - \bar{S}_o\right] \tag{76}$$

The steps in the iteration procedure are given by

$$2n + 2 \rightarrow 2n \tag{77}$$

$$\left(\frac{Rd}{2n}\right)^2 \bar{S}_{2n-2} \rightarrow \bar{S}_{2n} \qquad n \geq 1 \tag{78}$$

$$\left(\frac{2Rd}{R^2 + d^2}\right)^2 \left(\frac{2n - 1}{2n}\right) T_{2n-2} - \frac{|R^2 - d^2|}{R^2 + d^2}\left[1 + \frac{4n}{R^2 + d^2}\right] \bar{S}_{2n} \rightarrow T_{2n} \tag{79}$$

$$\sum + T_{2n} \rightarrow \sum \tag{80}$$

$$\sum' + S_{2n} \rightarrow \sum' \tag{81}$$

The iteration is recycled until

$$\begin{aligned} T_{2n} &\leq \epsilon = 10^{-j} \\ \bar{S}_{2n} &< \epsilon \quad 10^{-j} \end{aligned} \tag{82}$$

---

* If the variable S_{2n} of equation (31) is expressed in terms of R and d by means of the equivalences indicated in relations (73) and (74), the result is $S_{2n} = \frac{|R^2 - d^2|}{R^2 + d^2} \exp\left(-\frac{R^2 + d^2}{2}\right)\left(\frac{1}{n!}\right)^2\left(\frac{Rd}{2}\right)^{2n}$. In evaluating $P(R, d)$, however, it is convenient to omit the factor $|R^2 - d^2|/(R^2 + d^2)$, which is not present in the expression for $\partial P/\partial R$, equation (13). The resulting variable is denoted by $\bar{S}_{2n}$. Thus $S_{2n} = \frac{|R^2 - d^2|}{R^2 + d^2}\bar{S}_{2n}$. T_{2n} has the same significance here as previously (Section V), and hence no new variable $\bar{T}_{2n}$ is introduced.

The circular coverage function, $P(R,d)$, and its derivative with respect to R, i.e., $\partial P/\partial R$, are given finally by

$$P(R,d) = \frac{1}{2}\left[1 - \left(\bar{S}_o + \sum{}'\right) \pm \left(T_o + \sum\right)\right] \qquad \begin{matrix}(+)R > d \\ (-)R < d\end{matrix} \tag{83}$$

$$\frac{\partial P}{\partial R} = R\left(\bar{S}_o + \sum{}'\right) \tag{84}$$

Since $\sum_{n=o}^{\infty} T_{2n} = V\left(|R-d|, \frac{|R-d|}{R+d}\right) < 1$ (see equations (18) and (83)), and since each T_{2n} is positive, as can be seen from equation (25) if interpreted in terms of R and d rather than K and c, it follows that each individual term T_{2n} is less than unity. It can also be shown from relation (79) that the T's form a strictly decreasing monotonic sequence, each (except T_o) being formed from its immediate predecessor by multiplication by a positive constant (supposing $d > 0$) less than unity, followed by subtraction of a positive quantity. If $d = 0$, the $P(R,d)$ function is evaluated analytically as pointed out in Section II. The largest T_{2n} is T_o as given by equations (76). Since

$$\sum_{n=o}^{\infty} \bar{S}_{2n} = \exp\left(-\frac{R^2+d^2}{2}\right) I_o(Rd) = \exp\left[-\frac{1}{2}(R-d)^2\right]\left[\exp(-Rd) I_o(Rd)\right]$$

(also by comparing equations (18) and (83)), it is easily shown that

$\sum_{n=o}^{\infty} \bar{S}_{2n} < \exp\left[-\frac{1}{2}(R-d)^2\right] \leq 1$ again, assuming that $d > 0$. For the function $f(x) = \exp(-x) I_o(x)$ by standard properties of Bessel functions has a derivative $\exp(-x)\left[I_1(x) - I_o(x)\right]$ which is negative for all values of x, and hence, for positive values of x (or Rd), this function has a smaller value than its value at $x = 0$, which is unity. Each

$\bar{S}_{2n}\left[=\exp\left(-\frac{R^2+d^2}{2}\right)\left(\frac{1}{n!}\right)^2\left(\frac{Rd}{2}\right)^{2n}\right]$ is positive. If $Rd<2$, it is clear from the recurrence relation (78) that the largest of the $\bar{S}$'s is $\bar{S}_o$, which is given by the first of equations (76). If $Rd \geq 2$, the $\bar{S}$'s increase to a maximum term and then decrease. It can be shown that the largest term does not exceed $\exp\left(-\frac{1}{2}(R-d)^2\right)\Big/\left(2\pi\left[\frac{Rd}{2}\right]\right)$, where $\left[\frac{Rd}{2}\right]$ is the greatest integer not exceeding $\frac{Rd}{2}$.

If

$$2Rd > M \tag{84I}$$

the evaluation of equations (26), (18), (13) is started with the following initial values:

$$n=0 \qquad \sum=0 \qquad \sum'=0 \tag{85}$$

$$\bar{X}_1=\sqrt{2Rd}\,\frac{2}{\sqrt{\pi}}\exp\left(-\frac{1}{2}[R-d]^2\right)^{*}, \quad M_1=\frac{1}{\sqrt{2Rd}}\left(\frac{R+d}{\sqrt{2}}\right)\frac{2}{\sqrt{\pi}}\int_{|R-d|/\sqrt{2}}^{\infty}\exp(-y^2)\,dy \tag{86}$$

The steps in the iteration are given by the following recurrence relations:

$$2n+2 \rightarrow 2n \tag{87}$$

---

* $\bar{X}_1$ here does not correspond exactly to X_1 of equation (45) under the equivalences indicated in relations (73) and (74), and hence the change in notation. The relationship is $\bar{X}_1=(R+d)X_1$, and generally $\bar{X}_{2n+1}=(R+d)X_{2n+1}$. Similarly a new variable $\bar{Y}_{2n-1}=(R+d)Y_{2n-1}$ is used in relations (88), (89), (90). See an earlier footnote regarding the variable $\bar{S}_{2n}$ of the $P(R,d)$ program. M_{2n+1} has the same significance here as previously (Section V), and hence no new variable $\bar{M}_{2n+1}$ is introduced.

$$\frac{1}{4Rd}\left(\frac{2n-1}{2n}\right)\bar{X}_{2n-1}\rightarrow\bar{Y}_{2n-1} \tag{88}$$

$$\frac{(R^2+d^2)}{4Rd}\bar{Y}_{2n-1}-\frac{(R-d)^2}{4Rd}\left(\frac{2n-1}{2n}\right)W_{2n-1}\rightarrow W_{2n+1} \tag{89}$$

$$(2n-1)\,\bar{Y}_{2n-1}\rightarrow\bar{X}_{2n+1} \tag{90}$$

$$\sum+W_{2n+1}\rightarrow\sum \tag{91}$$

$$\sum'+\bar{X}_{2n+1}\rightarrow\sum' \tag{92}$$

The iteration is recycled until

$$\left.\begin{aligned}\bar{X}_{2n+1}&<\epsilon=10^{-j}\\ W_{2n+1}&<\epsilon=10^{-j}\end{aligned}\right\} \tag{93}$$

The circular coverage function, $P(R,d)$, and its derivative with respect to R, $\partial P/\partial R$, are finally given by

$$P(R,d)=\frac{1}{2}\left[1-\frac{1}{4Rd}\left\{\bar{Y}_1+\sum'\right\}\pm\left\{1-W_1-\sum\right\}\right]\qquad\begin{matrix}(+)\,R>d\\(-)\,R<d\end{matrix} \tag{94}$$

$$\frac{\partial P}{\partial R}=\frac{1}{4Rd}\left\{\bar{Y}_1+\sum'\right\} \tag{95}$$

In the case $R=d$, which was mentioned in Section II, equation (18) gives $P(R,d)=(1/2)\left[1-\exp(-R^2)\,I_0(R^2)\right]$. It is desired to show that the program gives this result without modifications. The quantity $2Rd$, or $2R^2$, could satisfy either of inequalities (74 I) and (84 I). In the former event, it is necessary merely to observe that all the T's vanish, by equations (76) and (79). The correct values of $P(R,d)$ and $\partial P/\partial R$ are then given by equations (83) and (84). If $2Rd=2R^2>W$, satisfying inequality (84 I), $W_1=1$ by equations (86), since $(2/\sqrt{\pi})\int_0^\infty\exp(-y^2)\,dy=Erf(\infty)=1$, and equation (89) shows that all other W's vanish. $P(R,d)$ and $\partial P/\partial R$ are then given correctly by equations (94) and (95).

VII. DISCUSSION OF THE TABLES

The tables are identified as Table I and Table II. Table I contains a tabulation of K as a function of V and c. There are two ranges of V and c in the table. The first part of the table has the following ranges for V and c:

$$\begin{aligned} V &= 0.01(0.01)0.99 \\ c &= 0(0.01)1.00 \end{aligned} \tag{96}$$

The second part of Table I has K tabulated for the following values of V and c:

$$V = 0.99(.0005)0.999(.0001)0.9999(.00001)0.99999(0.000001)0.999999 \tag{97}$$

$$c = 0,\ c = 0.10(.05)1.00$$

The values of K were determined by using a Newton-Raphson procedure as described in equation (149) in Appendix C. The value of V for which K was desired, $\overline{P}$, was held fixed and a sequence of values of K were determined by letting c range through the increasing values of c indicated above. The value of $\overline{P}$ was then incremented and the c values were spanned again. Thus the order of the computation consisted of computing values of K across each horizontal line of the table and then proceeding to the next horizontal line in the direction of increasing $\overline{P}$.

The Newton-Raphson procedure requires a starting value of K. Each starting value of K was determined by choosing the final value of K computed for the previous value of c, except for c equal to zero. The starting value of K for c equal to zero was chosen as the value of K computed for the last value of $\overline{P}$ with c equal to zero.

The value of K was accepted as correct to within one unit in the sixth decimal digit for any $\overline{P}$ and c in the range specified by the equalities (96), (97) whenever

$$\begin{aligned} |V(K_n, c) - \overline{P}| &< 1 \times 10^{-7} \\ |K_n - K_{n-1}| &< 5 \times 10^{-7} \end{aligned} \tag{98}$$

The value of j, that appears in equations (59), (70), and M were chosen such that

$$j = 8, \qquad M = 30 \tag{99}$$

for $\overline{P}$ and c satisfying equalities (96), and

$$j = 12 \qquad M = 40 \tag{100}$$

for $\overline{P}$ and c satisfying equalities (97). The values of M were chosen conservatively with respect to the analysis given in Appendix (A). An average of four iterations were required to determine K for the range given by equalities (96) and an average of five iterations for the range given by equalities (97). The average time of computation per case is ten milliseconds for NORC; this time could be reduced to about six milliseconds which is the average computation time on the IBM 7090 if $Erf(x)$ and $Erf'(x)$ were computed as on the 7090 and as described in Appendix (B).

Table II contains a tabulation of K as a function of P and d. There are two ranges of P and d. The first part of the table has the following ranges for P and d:

$$P = 0.01(.01)0.99$$

$$d = 0(.10)5(.20)10(2)20(5)120 \tag{101}$$

The second portion of the table has K tabulated for the following values of P and d:

$$P = 0.99(.0005)0.999(.0001)0.9999(.00001)0.99999(.000001)0.999999 \tag{102}$$

$$d = 0,\ 0.05,\ 0.10,\ 0.25,\ 0.50,\ 0.75,\ 1.0,\ 1.5,\ 2,\ \ 3,$$

$$4,\ 5,\ 6,\ 8,\ 10,\ 20,\ 30,\ 50,\ 80,\ 120.$$

The values of K were determined by using a Newton-Raphson procedure as described by equation (150) in Appendix (C). The value of $P(K,d)$ for which K was desired, $\overline{P}$, was held fixed and a sequence of values of K determined by letting d range through the increasing values indicated above. The value of $\overline{P}$ was then incremented and the d values were spanned again. The order of the computation consisted of computing values of K across each horizontal line of the table and then proceeding to the next horizontal line in the direction of increasing $\overline{P}$.

The Newton-Raphson procedure requires a starting value of R. This starting value was chosen as the final value of R, which was tabulated, for the previous value of d, except for d equal to zero. The starting value of R, for d equal to zero, was chosen equal to the value of R tabulated for the last input value of $\bar{P}$ when d equalled zero.

The value of R was accepted as correct to within one unit in the last digit position given for any $\bar{P}$ and d in the range specified by equalities (101), (102), whenever

$$|P(R_n, d) - \bar{P}| < 1 \times 10^{-7} \tag{103}$$

$$|R_n - R_{n-1}| < 5 \times 10^{-7} \qquad (R_n < 4) \tag{104}$$

$$|R_n - R_{n-1}| < (5 \times 10^{-7}) R_n \qquad (R_n \geq 4) \tag{105}$$

The value of j, that appears in equations (82), (93), and M were chosen such that

$$j = 8 \qquad M = 30 \tag{106}$$

for $\bar{P}$ and d satisfying equalities (101), and

$$j = 12 \qquad M = 40 \tag{107}$$

for $\bar{P}$ and d satisfying equalities (102). The values of M were chosen conservatively with respect to the analysis in Appendix (A). The number of iterations and computing time are identical to those already stated above for the V function.

After the radii K and R had been computed, by the Newton-Raphson procedure, satisfying inequalities (98) (for K) and (103) - (105) (for R), they were checked by a method described and flow-charted in Appendix (C).

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APPENDIX A

ESTIMATION OF THE FACTOR M

ESTIMATION OF THE FACTOR M

This section is devoted to a method for estimating the lower bound of M that could be used in the inequalities (61 I), (74 I). A subsequent conservative estimate is obtained for the maximum number of terms required for the Taylor or asymptotic representation of $V(K,c)$. It will be indicated that the value of M chosen for computing $V(K,c)$ will also be satisfactory for $P(K,d)$ at the same level of accuracy.

The estimate for M is based on two requirements which are as follows:

a) at least one term of the asymptotic series of equation (26) must attain a value less than a pre-assigned $\epsilon > 0$, for all K and c

whenever

$$AK^2 > M \tag{108}$$

b) the Taylor series and asymptotic series should be truncated at approximately the same number of terms in the neighborhood of

$$AK^2 = M \tag{109}$$

Condition (b) can be relaxed somewhat since it is not a critical requirement. It is imposed primarily to maintain the computing program at more or less optimum efficiency. This is based on the assumption that the computation time per cycle as well as the number of exponentials, Erf functions and square roots to be computed for each series is equal.

Condition (a) however must be satisfied because the final results, for $AK^2 > M$, depend directly on that requirement. Furthermore, even though one or more terms of the asymptotic series, all of whose terms are positive, do become less than epsilon (ϵ), the stipulation that $V(K,c)$ will be computed with a pre-assigned accuracy, $\bar{\epsilon}$, is not assured a priori. The reason for this is that no rigorous error bound

exists, in general, whenever all terms of an asymptotic series have like sign. Thus in the final analysis it was necessary to check the results, derived below, by numerical experiment. The experiment is described in this appendix following the analysis.

The procedure for estimating M is an iterative one, i.e., various values of AK^2 are tested until condition (a) is satisfied; simultaneously the asymptotic term of minimum value, say the $N_A{}^{th}$ term, is determined. Upon the determination of N_A, the value of AK^2 is substituted into the corresponding Taylor series, equation (25), and the first term of that series, which becomes less than the epsilon, say the $N_T{}^{th}$ term, is determined. If

$$|N_A - N_T| > 1 \tag{110}$$

the procedure is iterated by changing the value of AK^2 in such a way that condition (a) continues to be satisfied and the magnitude of $|N_A - N_T|$ is reduced.

In order to be specific, let $\epsilon = 1 \times 10^{-8}$ and assume six correct decimal digits are required for the final result, $V(K,c)$. Then N_A is determined in the following way. The general n^{th} term of the asymptotic series, equation (26), is given by

$$M_{2n+1} = \frac{1}{2A\,c\sqrt{\pi}} \frac{[(2n)!]^2}{2^{4n}(n!)^3} \int_{AK^2}^{\infty} \exp(-w/2A)\, w^{-\left(\frac{2n+1}{2}\right)}\, dw \qquad (n \geq 0) \tag{111}$$

Then

$$M_{2n+1} \leq \frac{1}{2A\,c\sqrt{\pi}} \frac{[(2n)!]^2}{2^{4n}(n!)^3} \exp(-K^2/2) \int_{AK^2}^{\infty} w^{-\left(\frac{2n+1}{2}\right)}\, dw$$

$$\leq \frac{1}{2A\,c\sqrt{\pi}} \frac{[(2n)!]^2}{2^{4n}(n!)^3} \exp(-K^2/2) \frac{(AK^2)^{-\left(\frac{2n-1}{2}\right)}}{(2n-1)} \qquad (1 \leq n < N) \tag{112}$$

The use of Stirling's approximation for the factorial in the preceding inequality leads to

$$M_{2n+1} < \frac{K\exp(-K^2/2)}{2\pi\sqrt{1-c^2}}\left(\frac{1}{\sqrt{n}(n-1/2)}\right)\left(\frac{n}{AK^2e}\right)^n \qquad (n \geq 1) \tag{113}$$

In order to satisfy condition (a), for $\epsilon = 1 \times 10^{-8}$, it is apparent that AK^2 must certainly be greater than ten. Moreover if six correct digits are desired in the final result, then since for a fixed $V(K,c)$ the radius K is a maximum for $c = 1$, it follows directly by evaluating K from the equation

$$V(K,1) = [1 - \exp(-K^2/2)] = 0.9999995 \tag{114}$$

that the range of K, under these conditions, is limited to

$$0 < K < 5.26 \tag{115}$$

For values of AK^2 that satisfy the inequality

$$AK^2 > 16 \tag{116}$$

the range of c^2 is limited by the inequality

$$0 \leq c^2 \leq 0.47 \tag{117}$$

Using the above inequalities, it follows that

$$\frac{1}{2\pi}\frac{K}{\sqrt{1-c^2}} < 1.2 \tag{118}$$

Therefore

$$M_{2n+1} < 1.2\left[\frac{1}{\sqrt{n}(n-1/2)}\right]\left[\frac{n}{AK^2e}\right]^n = f(n) \tag{119}$$

By considering $f(n)$ as a differentiable function of n, the approximate minimum value of M_{2n+1} is obtained by determining the root of the equation

$$f'(n_o)/f(n_o) = 0 \tag{120}$$

The implicit relation for n_o as a function of AK^2 is

$$AK^2 = n_o \exp\left[-\frac{1}{2n_o} - \frac{2}{2n_o-1}\right] \tag{121}$$

The substitution of this relation into the equation for $f(n)$ gives

$$M_{2n+1}\,(\min) < 1.2\,\frac{1}{\sqrt{n_o}}\left(\frac{2}{2n_o-1}\right)\exp\left[\frac{1}{2}+\frac{2n_o}{2n_o-1}-n_o\right] \tag{122}$$

Dropping terms of $0(1/n_o)$ gives

$$AK^2 \sim n_o \tag{123}$$

$$M_{2n+1} \sim 1.2 n_o^{-3/2}\, e^{3/2}\, e^{-n_o} \sim 1.2(e/AK^2)^{3/2}\, e^{-AK^2} \tag{124}$$

Thus for

$$\left.\begin{aligned} AK^2 &= 16.25 \\ N_A &\sim 17.0 \\ M_{2n+1}\,(\min) &< 10^{-8} \end{aligned}\right\} \tag{125}$$

The procedure continues in order to determine whether

$$N_T \sim 17.0$$

such that condition (b) is satisfied.

The n^{th} term of the Taylor series is given by equation (25) as

$$T_{2n} = \frac{2}{Ac}\left(\frac{1}{n!}\right)^2 \int_c^{AK^2/4} \exp\,(-2Bw/A)\, w^{2n}\, dw \qquad (n \geq 0) \tag{126}$$

The use of Stirling's approximation for the factorial and the first mean value theorem of integral calculus implies

$$T_{2n} < \frac{2}{Ac}\;\frac{1}{2\pi n}\left(\frac{e}{n}\right)^{2n} \int_o^{AK^2/4} w^{2n}\, dw \tag{127}$$

$$T_{2n} < \frac{4c}{1-c^2}\left(\frac{1}{2\pi e}\right)\frac{1}{2n+1}\left(\frac{AK^2 e}{n}\right)^{2n+1} < \frac{2}{3\pi e}\,\frac{1}{n}\left(\frac{AK^2 e}{4n}\right)^{2n+1} \qquad 0 < c \leq 1/2 \tag{128}$$

$$T_{2n} < \frac{K^2}{4\pi c}\,\frac{1}{n(2n+1)}\left(\frac{AK^2 e}{4n}\right)^{2n} < \frac{1}{\pi}\,\frac{1}{n^2}\left(\frac{AK^2 e}{4n}\right)^{2n} \qquad 1/2 < c < 1$$

For

$$M^2 = 16.25 \tag{129}$$

$$N_T = 17 = N_1 \tag{130}$$

$$T_{2N_T} < \frac{2.23}{(17)^2}\left(\frac{16.25e}{68}\right)^{34} \sim 3.3 \times 10^{-9} \tag{131}$$

whereas

$$T_{32} \sim 6.0 \times 10^{-8}$$

Thus conditions (a) and (b) are satisfied ($\epsilon = 10^{-8}$) by

$$\left.\begin{aligned} M &= 16.25 \\ N_T = N_1 &= 17 = N \end{aligned}\right\} \tag{132}$$

In order to carry out a similar analysis for the $P(I_1/I_0)$ function, it is necessary to consider the second term of equation (18). If the asymptotic series is used to represent I_0, then the n^{th} term of the series which represents the second term in equation (18) would be

$$\frac{1}{4Kd}\,\bar{Y}_{2n+1} \sim \frac{\exp\left[-(K-d)^2/2\right]}{\sqrt{2\pi Kd}}\left[\frac{(2n!)^2}{2^{4n}(n!)^4}\right](2Kd)^{-n} \qquad n = 0 \tag{133}$$

In the case of the Taylor series, the n^{th} term would be given by

$$S_{2n} = \exp\left[-(K^2+d^2)/2\right]\left(\frac{1}{n!}\right)^2\left(\frac{Kd}{2}\right)^{2n} \tag{134}$$

After introducing Stirling's approximation and replacing the exponential term by unity, the quantities M and N are approximated from the relations (133) and (134) as

$$\bar{S}_{2n} \sim \frac{1}{2\pi n}\left(\frac{Kde}{2n}\right)^{2n}, \qquad \frac{1}{4Kd}\,\bar{Y}_{2n+1} \sim \frac{1}{2\pi Kd}\sqrt{\frac{2}{e}}\left(\frac{n}{2Kde}\right)^{n-1/2} \tag{135}$$

The substitution of unity for the exponential terms leads to conservative estimates for M and N. The value of M ($\epsilon = 10^{-8}$) was

$$2Kd = M = 16.25, \tag{136}$$

and subsequently, the value of N was found to be

$$N = 17.$$

The analysis above is crude and is given only to indicate the approximate values of M and N that one might choose if all other factors were equal, i.e., if the asymptotic and Taylor series required computation of the same number of exponentials, square roots and Erf functions and if the number of operations in the basic computing loop to calculate an arbitrary term of each series were the same. Actually, this is not so, even though the loop is about the same length in both cases, because use of the asymptotic series requires the computation of an Erf function, exponential function and square root whereas the Taylor series requires the calculation of two exponential functions for the IBM 7090 program and only one for the NORC program. Thus in order to maintain efficiency and also insure sufficient accuracy in the use of the asymptotic series, an "N" factor equal to thirty was chosen for the NORC program and an "M" of twenty for the IBM 7090 program. The maximum number of Taylor series terms used in the NORC program such that the series were terminated when any term became less than 10^{-8} in value was twenty and about sixteen for the IBM 7090 program.

The computed results were verified as correct, to within the specified epsilon, by the following experiment:

A range of values of A and K were chosen which spanned the domain of V(or P) in the neighborhood of AK^2 (or $2Rd$) = 18–30. Then each individual case was run on the computer using first the Taylor series and then the asymptotic series to compute the value of V(or P) for the same value of K (or R), ϵ (or d). In all cases the values of V(or P), by this "overlapping" technique, agreed to within the accuracy of the specified epsilon. The minimum ϵ had a value of 10^{-12}. It was concluded therefore on the basis of these tests that the series given herein would yield results of prespecified accuracy on the basis of the criteria given above in spite of the lack of rigorous practical error bounds on either series.

APPENDIX B

COMPUTATION OF THE ERROR FUNCTION ($Erf(x)$) AND ITS DERIVATIVE

COMPUTATION OF THE ERROR FUNCTION ($Erf(x)$) AND ITS DERIVATIVE

The Erf function, $Erf(x) = \frac{2}{\sqrt{\pi}} \int_0^x e^{-t^2}\, dt,$ (137)

and its derivative, $Erf'(x) = \frac{2}{\sqrt{\pi}} e^{-x^2}$, are computed rapidly and with sufficient accuracy in the present IBM 7090 program by using an iterative interpolation procedure as described in [7]. See also Sec. VI of [12], from which the following account is taken.

The functions, $Erf(x)$ and $Erf'(x)$ have the following Taylor expansions:

$$Erf(x) \sim \sum_{n=0}^{\kappa} \frac{(\Delta x)^n}{n!} H^{(n)}(x_0) = \sum_{n=0}^{\kappa} l_n, \tag{138}$$

$$Erf'(x) \sim \sum_{n=0}^{\kappa} \frac{(\Delta x)^n}{n!} H^{(n+1)}(x_0) = \sum_{n=0}^{\kappa} L_n, \tag{139}$$

where $\Delta x = x - x_0 = p\gamma$ such that $|p| \leq \frac{1}{2}$.

The quantity x_0 is representative of the values of x for which $Erf(x)$ and $Erf'(x)$ are stored at intervals of length γ such that

$$|x - x_0| \leq \frac{1}{2}\gamma. \tag{140}$$

The functions $H^{(n)}(x)$ for $n \geq 2$ are equal to the classical Hermite polynomials, $H_{n-1}(x)$, multiplied by $Erf'(x)$, [7]. In defining the Hermite polynomials, some works on special functions use different conventions regarding algebraic signs. The present authors follow the conventions of page v in the Introduction of [7], wherein $H_1(x) = -2x$, $H_2(x) = 4x^2 - 2$, $H_3(x) = -8x^3 + 12x$, ... The recurrence relations which generate the individual terms l_n, L_n are given as follows:

Let

$$I_n = J_n H^{(n)} \tag{141}$$

$$L_n = J_n H^{(n+1)}, \quad n = 2, 3, 4, \ldots, \kappa, \tag{142}$$

where

$$J_n = \frac{\Delta x}{n} J_{n-1}, \quad J_1 = \Delta x \tag{143}$$

$$H^{(n)}(x) = -2\left[x H^{(n-1)}(x) + (n-2) H^{(n-2)}(x)\right] \tag{144}$$

Thus

$$I_n = -2\frac{\Delta x}{n}\left[x_o I_{n-1} + \left(\frac{\Delta x}{n-1}\right)(n-2) I_{n-2}\right] \tag{145}$$

$$L_n = -2\frac{\Delta x}{n}\left[x_o L_{n-1} + \Delta x L_{n-2}\right] \tag{146}$$

The starting values are given by

$$I_o = H(x_o) \equiv Erf(x_o) \qquad I_1 = \Delta x H'(x_o) = \Delta x Erf'(x_o) \tag{147}$$

$$L_o = H'(x_o) \equiv Erf'(x_o) \qquad L_1 = \Delta x H''(x_o) = -2x_o \Delta x H'(x_o) \tag{148}$$

If γ is sufficiently small, very few terms of the series given by equations (138), (139) are required to evaluate the Erf function and its derivative to a specified accuracy. The integer κ is therefore a function of epsilon and gamma. It was determined for different ϵ and γ by computing the maximum value of $H^{(n)}(x)$ on the domain $0 \leq x_o \leq 3.85$, (see equation (1) in [7] for error term involved). This was sufficient to bound the absolute truncation error. A table is given below for the absolute truncation error as a function κ and γ.

	$Erf(x)$				$\frac{d}{dx}\left[Erf(x)\right]$			
κ	$\gamma = 0.10$	$\gamma = 0.05$	$\gamma = 0.025$	$\gamma = 0.01$	$\gamma = 0.10$	$\gamma = 0.05$	$\gamma = 0.025$	$\gamma = 0.01$
1	1.21(-3)	3.02(-4)	7.56(-5)	1.21(-5)	2.82(-3)	7.05(-4)	1.76(-4)	2.82(-5)
2	4.70(-5)	5.88(-6)	7.35(-7)	4.70(-8)	9.18(-5)	1.15(-5)	1.43(-6)	9.18(-8)
3	1.15(-6)	7.17(-8)	4.48(-9)	1.15(-10)	3.53(-6)	2.20(-7)	1.38(-8)	3.53(-10)
4	3.53(-8)	1.10(-9)	3.44(-11)	3.53(-13)	9.61(-8)	3.00(-9)	9.39(-11)	9.61(-13)
5	8.01(-10)	1.25(-11)	1.96(-13)	8.01(-16)	2.94(-9)	4.59(-11)	7.17(-13)	2.94(-15)

Absolute Truncation Error for Various Values of κ and γ.

Values in the Parentheses Indicate the Power of 10 by which the Tabulated Values Should be Multiplied.

APPENDIX C

PROCEDURE FOR COMPUTING AND CHECKING TABLES

PROCEDURE FOR COMPUTING AND CHECKING TABLES

In table I, K is determined as a function of V and c. This is done by the Newton - Raphson procedure. Thus the n^{th} iterate of K, K_n, for a fixed value of V, equal to $\overline{P}$, is

$$K_n = K_{n-1} - \frac{V(K_{n-1}, c) - \overline{P}}{\partial V(K_{n-1}, c)/\partial K} \qquad n \geq 1 \qquad (149)$$

Similarly, in table II, R is determined as a function of P and d. This is also done by the Newton - Raphson procedure. Thus the n^{th} iterate of R, R_n, for a fixed value of $P(R, d)$, equal to $\overline{P}$, is

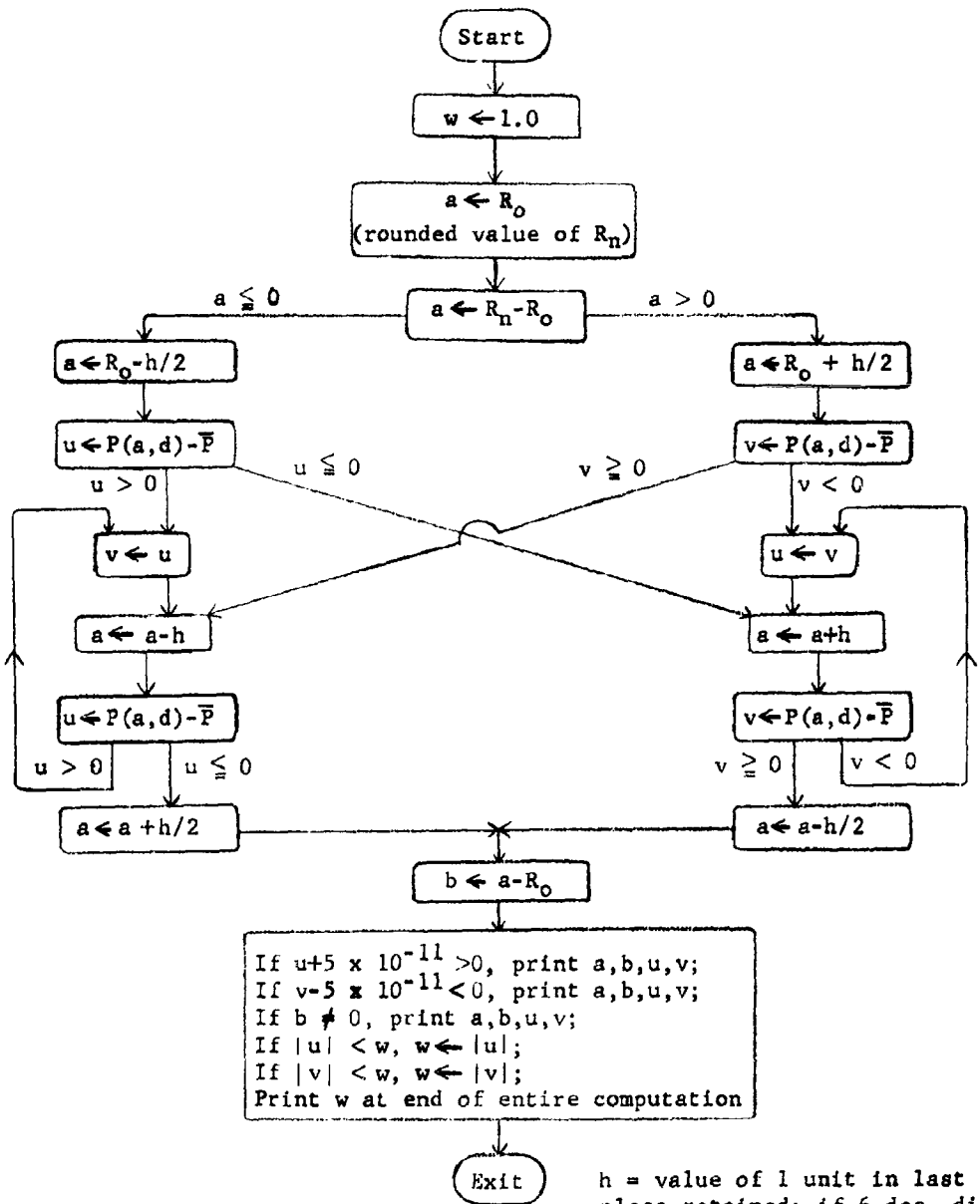
$$R_n = R_{n-1} - \frac{P(R_{n-1}, d) - \overline{P}}{\partial P(R_{n-1}, d)/\partial R} \qquad n \geq 1 \qquad (150)$$

All values in both inverse tables were checked, and in a few borderline cases corrected by one unit in the last figure retained, by a checking program based solely on the direct computation of probabilities. The details of this program are shown in the accompanying flow chart. Although the letter K is used in the flow chart to denote the radius of the circle corresponding to the specified probability $\overline{P}$, this procedure was used for checking both the $V(K, c)$ and the $P(R, d)$ inverse tables. The last approximation for the radius (K or R) determined by the Newton-Raphson procedure is denoted in the flow chart as R_n. This value R_n is then rounded to a predetermined number of figures, seven significant figures if $R_n \geq 1$ and six decimal places if $R_n < 1$, and the rounded number is called R_o and is the value of the radius given in the inverse table if subsequently verified by the checking program. The essence of the checking method can now be described in one sentence: $u \equiv P(R_o - h/2, d) - \overline{P}$ and $v \equiv P(R_o + h/2, d) - \overline{P}$ are computed, and, if $u \leq 0$ and $v \geq 0$, R_o is thereby determined as the rounded value of the radius, correct to the last figure retained. The symbol h here represents the value of one unit in the last place retained; for example, if $10 \leq R_o < 100$ so that R_o is carried to five decimal places, then $h = 10^{-5}$. If the conditions $u \leq 0$ and $v \geq 0$ are satisfied, then R_o is bounded between $R_o - h/2$, which is too small to give the specified probability $\overline{P}$ (unless $u = 0$), and $R_o + h/2$, which is too large (unless $v = 0$), assuming

that the direct program computes probabilities correctly. But if u or v is excessively small numerically, say less than 5×10^{-11}, then there is doubt as to the correctness of the last figure even if $u < 0$, and $v > 0$, because of the limitations on the accuracy of computed probabilities. For this reason, excessively small values of u and v (in absolute value) are printed, for identification and possible further study of these borderline cases. If $u > 0$ or $v < 0$, a definite error of at least one unit in the last figure of R_o is indicated, and the program decreases or increases radii by one unit in the last place, according as $u > 0$, or $v < 0$, and again attempts to bound the correct radius between two numbers of the form $c - h/2$ and $c + h/2$ where c is a rounded number. The checking program provides for the indefinite iteration of this process until the radius is bounded in the manner described, but in practice there are only a few cases in which the checking program corrects the original R_o by one unit in the last place, and none in which the correction is more than one unit.

The use of this program requires a detailed knowledge of the precision with which V or P is computed. In the high probability portions of the tables, since $\partial V/\partial K$ or $\partial P/\partial R$ can be as small as 5×10^{-6} it was necessary to compute V and P to 10^{-12} or better. Both tables were computed on the NORC. The parameter M, which determines whether the Taylor or asymptotic series is used, and which is discussed in Appendix A, was taken equal to forty. The epsilon, which determines the least upper bound of the smallest term considered, whether one series or the other is used, and which is also discussed in Appendix A, was set equal to 10^{-12}.

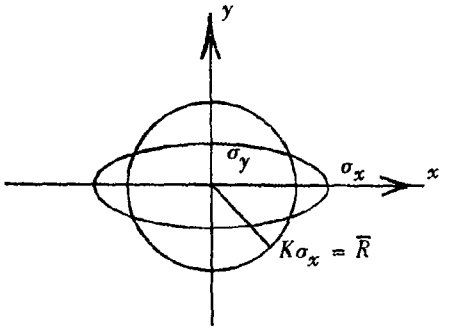
Program for Checking V(K,c) and P(R,d) Inverse Tables



h = value of 1 unit in last place retained; if 6 dec. digits, h = 10^{-6}; R_n is rounded by shifting off extra digits from (R_n+h/2).

APPENDIX D
INVERSE TABLE OF $V(K, c)$

IDENTIFICATIONS FOR THE $V(K, c)$ TABLE



σ_x, σ_y are standard deviations in the x and y directions respectively with the mean of the distribution at the origin.

$K\sigma_x$ is the radius of the circle over which the integral is evaluated. Center of circle is at origin.

$$c = \frac{\sigma_y}{\sigma_x} \qquad 0 \leqq c \leqq 1 \tag{151}$$

This is an inverse table. K is given as a function of V or (P = probability) and c.

Ranges for the variables.

Main table:

$$\left\{ \begin{array}{l} c = 0(0.01)1.00 \\ P = 0.01(0.01)0.99 \end{array} \right\} \tag{152}$$

Supplementary table of high probabilities:

$$\left\{ \begin{array}{l} c = 0,\ c = 0.10(.05)1.00 \\ \\ P = .99(.0005).9990(.0001).9999(.00001).99999(.000001).999999 \end{array} \right\} \tag{153}$$

$V(K, c)$ Example

Suppose that a group of bombs fall in an uncorrelated bivariate normal distribution with standard deviations $\sigma_x = 100$ feet, $\sigma_y = 250$ feet along the coordinate axes. If a point target is at the mean point of the distribution, what must the lethal radius of the bomb be in order that the probability of destroying the target with a single bomb will be $P = 0.95$?

Solution: The roles of x and y must be reversed since it is assumed in the theory that $\sigma_y \leq \sigma_x$. Here the parameters are taken as $\sigma_x = 250$, $\sigma_y = 100$, $c = \sigma_y / \sigma_x = 0.4$, $P = 0.95$. Entering the $V(K, c)$ inverse table with these values, it is found that $K = \overline{R} / \sigma_x = 2.0051$. Hence lethal radius $\overline{R} = 2.0051\ \sigma_x = 501.3$ feet approximately.

K = K(V,c) where probability P = V(K,c)

V\c	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.01	0.012533	0.016289	0.021377	0.025584	0.029213	0.032446	0.035389	0.038107	0.040644	0.043033
0.02	0.025069	0.027201	0.032580	0.037029	0.042758	0.047143	0.051175	0.054922	0.058436	0.061754
0.03	0.037608	0.038971	0.043303	0.048876	0.054314	0.059400	0.064148	0.068600	0.072799	0.076779
0.04	0.050154	0.051162	0.054418	0.059671	0.065179	0.070660	0.075884	0.080841	0.085551	0.090040
0.05	0.062707	0.063510	0.066031	0.070446	0.075873	0.081492	0.086999	0.092307	0.097398	0.102282
0.06	0.075270	0.075937	0.077994	0.081664	0.086659	0.092194	0.097816	0.103341	0.108706	0.113891
0.07	0.087845	0.088416	0.090159	0.093229	0.097669	0.102944	0.108530	0.114154	0.119694	0.125099
0.08	0.100434	0.100933	0.102449	0.105073	0.108956	0.113848	0.119270	0.124883	0.130509	0.136060
0.09	0.113039	0.113482	0.114824	0.117120	0.120511	0.124963	0.130119	0.135625	0.141254	0.146882
0.10	0.125661	0.126060	0.127264	0.129310	0.132301	0.136308	0.141131	0.146449	0.152006	0.157646
0.11	0.138304	0.138666	0.139759	0.141606	0.144278	0.147877	0.152334	0.157400	0.162821	0.168413
0.12	0.150969	0.151301	0.152300	0.153986	0.156404	0.159648	0.163736	0.168510	0.173740	0.179230
0.13	0.163658	0.163964	0.164886	0.166436	0.168647	0.171593	0.175334	0.179794	0.184791	0.190134
0.14	0.176374	0.176658	0.177512	0.178947	0.180987	0.183684	0.187112	0.191258	0.195994	0.201151
0.15	0.189118	0.189383	0.190179	0.191515	0.193409	0.195899	0.199052	0.202896	0.207359	0.212300
0.16	0.201893	0.202141	0.202887	0.204137	0.205905	0.208219	0.211135	0.214699	0.218887	0.223595
0.17	0.214702	0.214935	0.215635	0.216809	0.218468	0.220632	0.223344	0.226656	0.230578	0.235042
0.18	0.227545	0.227765	0.228426	0.229533	0.231094	0.233127	0.235664	0.238753	0.242423	0.246643
0.19	0.240426	0.240634	0.241260	0.242306	0.243782	0.245699	0.248083	0.250976	0.254415	0.258396
0.20	0.253347	0.253545	0.254138	0.255131	0.256529	0.258344	0.260594	0.263313	0.266543	0.270297
0.21	0.266311	0.266498	0.267063	0.268007	0.269336	0.271058	0.273189	0.275757	0.278798	0.282339
0.22	0.279319	0.279498	0.280036	0.280936	0.282201	0.283841	0.285865	0.288298	0.291172	0.294515
0.23	0.292375	0.292546	0.293060	0.293919	0.295127	0.296691	0.298620	0.300932	0.303655	0.306821
0.24	0.305481	0.305645	0.306136	0.306958	0.308114	0.309608	0.311451	0.313654	0.316243	0.319246
0.25	0.318639	0.318796	0.319268	0.320055	0.321163	0.322594	0.324357	0.326462	0.328930	0.331785
0.26	0.331853	0.332004	0.332457	0.333213	0.334275	0.335648	0.337338	0.339354	0.341712	0.344435
0.27	0.345126	0.345270	0.345706	0.346433	0.347454	0.348773	0.350395	0.352329	0.354587	0.357189
0.28	0.358459	0.358598	0.359017	0.359717	0.360700	0.361969	0.363529	0.365387	0.367554	0.370046
0.29	0.371856	0.371991	0.372394	0.373069	0.374016	0.375238	0.376740	0.378529	0.380612	0.383003
0.30	0.385320	0.385450	0.385840	0.386491	0.387404	0.388583	0.390032	0.391755	0.393760	0.396059
0.31	0.398855	0.398980	0.399357	0.399985	0.400868	0.402006	0.403404	0.405067	0.407000	0.409214
0.32	0.412463	0.412584	0.412948	0.413556	0.414409	0.415509	0.416860	0.418466	0.420332	0.422467
0.33	0.426148	0.426265	0.426618	0.427206	0.428031	0.429096	0.430402	0.431955	0.433758	0.435820
0.34	0.439913	0.440027	0.440368	0.440938	0.441737	0.442768	0.444033	0.445535	0.447280	0.449273
0.35	0.453762	0.453872	0.454203	0.454755	0.455530	0.456529	0.457755	0.459210	0.460900	0.462828
0.36	0.467699	0.467806	0.468127	0.468662	0.469414	0.470383	0.471571	0.472982	0.474619	0.476488
0.37	0.481727	0.481831	0.482142	0.482662	0.483392	0.484332	0.485486	0.486855	0.488442	0.490254
0.38	0.495850	0.495951	0.496254	0.496759	0.497468	0.498381	0.499501	0.500830	0.502372	0.504129
0.39	0.510073	0.510171	0.510466	0.510957	0.511646	0.512533	0.513622	0.514913	0.516410	0.518117
0.40	0.524401	0.524496	0.524782	0.525260	0.525930	0.526793	0.527851	0.529106	0.530562	0.532220
0.41	0.538836	0.538929	0.539207	0.539672	0.540324	0.541164	0.542193	0.543415	0.544830	0.546447
0.42	0.553385	0.553475	0.553746	0.554199	0.554833	0.555651	0.556653	0.557842	0.559219	0.560787
0.43	0.568051	0.568140	0.568404	0.568845	0.569463	0.570259	0.571235	0.572393	0.573733	0.575260
0.44	0.582842	0.582927	0.583185	0.583614	0.584217	0.584993	0.585944	0.587071	0.588378	0.589864
0.45	0.597760	0.597844	0.598095	0.598514	0.599101	0.599858	0.600785	0.601884	0.603157	0.604605
0.46	0.612813	0.612895	0.613140	0.613548	0.614121	0.614859	0.615763	0.616835	0.618076	0.619488
0.47	0.628006	0.628086	0.628325	0.628723	0.629282	0.630002	0.630884	0.631930	0.633140	0.634518
0.48	0.643345	0.643423	0.643656	0.644046	0.644591	0.645294	0.646155	0.647175	0.648356	0.649700
0.49	0.658838	0.658914	0.659141	0.659521	0.660054	0.660740	0.661581	0.662577	0.663729	0.665041
0.50	0.674490	0.674564	0.674785	0.675159	0.675678	0.676348	0.677169	0.678141	0.679267	0.680548

K = K(V,c) where probability P = V(K,c)

V\c	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.50	0.674490	0.674564	0.674786	0.675158	0.675678	0.676348	0.677169	0.678141	0.679267	0.680548
0.51	0.690309	0.690381	0.690599	0.690961	0.691470	0.692124	0.692926	0.693876	0.694976	0.696227
0.52	0.706303	0.706373	0.706586	0.706940	0.707437	0.708077	0.708860	0.709789	0.710863	0.712085
0.53	0.722479	0.722548	0.722756	0.723102	0.723588	0.724213	0.724979	0.725887	0.726937	0.728131
0.54	0.738847	0.738915	0.739118	0.739456	0.739931	0.740543	0.741292	0.742179	0.743205	0.744372
0.55	0.755415	0.755481	0.755680	0.756011	0.756476	0.757074	0.757806	0.758672	0.759677	0.760818
0.56	0.772193	0.772258	0.772452	0.772776	0.773231	0.773816	0.774532	0.775381	0.776362	0.777478
0.57	0.789192	0.789255	0.789445	0.789762	0.790207	0.790779	0.791480	0.792310	0.793270	0.794362
0.58	0.806421	0.806483	0.806669	0.806980	0.807415	0.807975	0.808661	0.809473	0.810412	0.811480
0.59	0.823894	0.823954	0.824136	0.824440	0.824866	0.825414	0.826085	0.826880	0.827800	0.828845
0.60	0.841621	0.841681	0.841859	0.842156	0.842573	0.843110	0.843767	0.844545	0.845445	0.846468
0.61	0.859617	0.859676	0.859850	0.860141	0.860549	0.861075	0.861718	0.862479	0.863360	0.864362
0.62	0.877896	0.877953	0.878124	0.878409	0.878809	0.879323	0.879953	0.880698	0.881561	0.882541
0.63	0.896473	0.896529	0.896697	0.896976	0.897367	0.897871	0.898487	0.899217	0.900062	0.901021
0.64	0.915365	0.915420	0.915584	0.915857	0.916240	0.916733	0.917337	0.918052	0.918879	0.919819
0.65	0.934589	0.934643	0.934803	0.935071	0.935446	0.935929	0.936521	0.937221	0.938031	0.938951
0.66	0.954165	0.954218	0.954375	0.954637	0.955005	0.955478	0.956057	0.956743	0.957536	0.958437
0.67	0.974114	0.974165	0.974319	0.974576	0.974936	0.975400	0.975967	0.976639	0.977415	0.978298
0.68	0.994458	0.994508	0.994659	0.994911	0.995263	0.995717	0.996273	0.996931	0.997691	0.998556
0.69	1.015222	1.015271	1.015419	1.015666	1.016011	1.016456	1.017000	1.017644	1.018389	1.019236
0.70	1.036433	1.036482	1.036626	1.036868	1.037206	1.037642	1.038175	1.038806	1.039536	1.040365
0.71	1.058122	1.058169	1.058311	1.058547	1.058879	1.059305	1.059827	1.060445	1.061160	1.061972
0.72	1.080319	1.080366	1.080505	1.080736	1.081061	1.081478	1.081990	1.082595	1.083295	1.084090
0.73	1.103063	1.103108	1.103244	1.103471	1.103789	1.104198	1.104699	1.105291	1.105977	1.106755
0.74	1.126391	1.126436	1.126569	1.126791	1.127102	1.127503	1.127993	1.128574	1.129245	1.130007
0.75	1.150349	1.150393	1.150523	1.150741	1.151046	1.151438	1.151918	1.152486	1.153144	1.153890
0.76	1.174987	1.175029	1.175157	1.175370	1.175668	1.176052	1.176523	1.177079	1.177722	1.178453
0.77	1.200359	1.200401	1.200526	1.200734	1.201026	1.201402	1.201862	1.202407	1.203036	1.203751
0.78	1.226528	1.226569	1.226691	1.226895	1.227181	1.227549	1.227999	1.228532	1.229148	1.229848
0.79	1.253565	1.253605	1.253725	1.253925	1.254204	1.254564	1.255005	1.255526	1.256129	1.256814
0.80	1.281552	1.281591	1.281708	1.281903	1.282176	1.282529	1.282959	1.283469	1.284059	1.284729
0.81	1.310579	1.310617	1.310732	1.310923	1.311190	1.311534	1.311954	1.312454	1.313031	1.313686
0.82	1.340755	1.340792	1.340904	1.341091	1.341352	1.341689	1.342101	1.342588	1.343152	1.343792
0.83	1.372204	1.372240	1.372350	1.372532	1.372787	1.373116	1.373519	1.373995	1.374545	1.375171
0.84	1.405072	1.405107	1.405214	1.405392	1.405641	1.405963	1.406356	1.406821	1.407358	1.407969
0.85	1.439531	1.439566	1.439670	1.439844	1.440088	1.440401	1.440785	1.441239	1.441763	1.442359
0.86	1.475791	1.475825	1.475927	1.476096	1.476334	1.476639	1.477013	1.477456	1.477968	1.478549
0.87	1.514102	1.514135	1.514234	1.514399	1.514631	1.514929	1.515293	1.515725	1.516224	1.516790
0.88	1.554774	1.554806	1.554902	1.555063	1.555289	1.555579	1.555934	1.556354	1.556840	1.557391
0.89	1.598193	1.598224	1.598318	1.598475	1.598694	1.598976	1.599322	1.599731	1.600203	1.600740
0.90	1.644854	1.644884	1.644975	1.645127	1.645340	1.645615	1.645950	1.646347	1.646807	1.647328
0.91	1.695398	1.695427	1.695516	1.695663	1.695870	1.696136	1.696462	1.696847	1.697292	1.697798
0.92	1.750686	1.750715	1.750800	1.750943	1.751143	1.751401	1.751716	1.752090	1.752521	1.753010
0.93	1.811911	1.811938	1.812021	1.812159	1.812353	1.812602	1.812906	1.813267	1.813683	1.814156
0.94	1.880794	1.880820	1.880900	1.881033	1.881219	1.881459	1.881753	1.882100	1.882501	1.882957
0.95	1.959964	1.959989	1.960066	1.960194	1.960373	1.960603	1.960884	1.961217	1.961603	1.962040
0.96	2.053749	2.053773	2.053846	2.053968	2.054139	2.054358	2.054627	2.054945	2.055313	2.055730
0.97	2.170090	2.170113	2.170183	2.170298	2.170459	2.170667	2.170921	2.171222	2.171570	2.171965
0.98	2.326348	2.326369	2.326434	2.326541	2.326692	2.326886	2.327123	2.327404	2.327728	2.328097
0.99	2.575829	2.575849	2.575907	2.576004	2.576140	2.576315	2.576529	2.576783	2.577076	2.577409

K = K(V,c) where probability P = V(K,c)

V\c	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19
0.01	0.045297	0.047453	0.049516	0.051496	0.053404	0.055245	0.057028	0.058756	0.060435	0.062069
0.02	0.064906	0.067914	0.070795	0.073565	0.076235	0.078816	0.081315	0.083740	0.086098	0.088393
0.03	0.080572	0.084198	0.087679	0.091030	0.094265	0.097393	0.100426	0.103372	0.106237	0.109027
0.04	0.094331	0.098447	0.102405	0.106223	0.109912	0.113486	0.116952	0.120324	0.123604	0.126802
0.05	0.106972	0.111484	0.115836	0.120041	0.124112	0.128060	0.131895	0.135626	0.139261	0.142806
0.06	0.118898	0.123735	0.128414	0.132945	0.137341	0.141610	0.145762	0.149806	0.153750	0.157599
0.07	0.130353	0.135453	0.140403	0.145210	0.149883	0.154430	0.158859	0.163177	0.167393	0.171511
0.08	0.141497	0.146804	0.151976	0.157015	0.161925	0.166712	0.171383	0.175943	0.180400	0.184759
0.09	0.152444	0.157907	0.163256	0.168486	0.173597	0.178592	0.183473	0.188247	0.192918	0.197491
0.10	0.163277	0.168848	0.174333	0.179717	0.184996	0.190167	0.195231	0.200193	0.205054	0.209819
0.11	0.174060	0.179695	0.185276	0.190779	0.196194	0.201513	0.206735	0.211860	0.216890	0.221827
0.12	0.184846	0.190501	0.196139	0.201729	0.207250	0.212691	0.218046	0.223312	0.228489	0.233578
0.13	0.195673	0.201308	0.206969	0.212612	0.218211	0.223748	0.229213	0.234599	0.239904	0.245128
0.14	0.206575	0.212151	0.217809	0.223467	0.229117	0.234725	0.240277	0.245763	0.251178	0.256518
0.15	0.217574	0.223059	0.228664	0.234325	0.239999	0.245655	0.251273	0.256839	0.262345	0.267786
0.16	0.228692	0.234054	0.239586	0.245213	0.250886	0.256566	0.262229	0.267857	0.273437	0.278963
0.17	0.239940	0.245155	0.250586	0.256154	0.261802	0.267484	0.273172	0.278842	0.284480	0.290075
0.18	0.251328	0.256374	0.261681	0.267167	0.272766	0.278440	0.284123	0.289819	0.295497	0.301146
0.19	0.262862	0.267723	0.272887	0.278268	0.283798	0.289423	0.295103	0.300805	0.306509	0.312196
0.20	0.274542	0.279209	0.284212	0.289470	0.294912	0.300479	0.306127	0.311821	0.317533	0.323246
0.21	0.286368	0.290834	0.295666	0.300785	0.306121	0.311613	0.317212	0.322880	0.328587	0.334310
0.22	0.298337	0.302602	0.307254	0.312221	0.317436	0.322837	0.328371	0.333998	0.339685	0.345405
0.23	0.310444	0.314512	0.318979	0.323795	0.328866	0.334161	0.339616	0.345188	0.350840	0.356543
0.24	0.322686	0.326561	0.330843	0.335482	0.340418	0.345595	0.350957	0.356460	0.362064	0.367739
0.25	0.335055	0.338748	0.342847	0.347314	0.352099	0.357146	0.362404	0.367825	0.373368	0.379002
0.26	0.347548	0.351068	0.354989	0.359284	0.363912	0.368822	0.373964	0.379292	0.384763	0.390344
0.27	0.360159	0.363518	0.367267	0.371393	0.375860	0.380627	0.385645	0.390869	0.396258	0.401774
0.28	0.372885	0.376094	0.379681	0.383640	0.387947	0.392565	0.397452	0.402564	0.407859	0.413302
0.29	0.385723	0.388792	0.392226	0.396024	0.400172	0.404640	0.409390	0.414382	0.419576	0.424935
0.30	0.398670	0.401611	0.404900	0.408545	0.412536	0.416853	0.421468	0.426329	0.431414	0.436680
0.31	0.411724	0.414547	0.417702	0.421200	0.425040	0.429207	0.433674	0.438410	0.443379	0.448546
0.32	0.424884	0.427598	0.430629	0.433989	0.437683	0.441702	0.446026	0.450629	0.455477	0.460537
0.33	0.438151	0.440764	0.443679	0.446909	0.450463	0.454338	0.458521	0.462988	0.467711	0.472660
0.34	0.451524	0.454044	0.456851	0.459960	0.463381	0.467118	0.471160	0.475491	0.480087	0.484919
0.35	0.465004	0.467439	0.470146	0.473141	0.476437	0.480039	0.483945	0.488141	0.492607	0.497319
0.36	0.478594	0.480948	0.483562	0.486451	0.489628	0.493103	0.496874	0.500930	0.505275	0.509865
0.37	0.492295	0.494573	0.497100	0.499880	0.502956	0.506319	0.509954	0.513886	0.518094	0.522559
0.38	0.506108	0.508316	0.510762	0.513450	0.516421	0.519660	0.523181	0.526986	0.531066	0.535407
0.39	0.520037	0.522178	0.524549	0.527160	0.530024	0.533153	0.536557	0.540238	0.544193	0.548410
0.40	0.534085	0.536164	0.538463	0.540992	0.543764	0.546791	0.550089	0.553646	0.557478	0.561572
0.41	0.548255	0.550274	0.552506	0.554959	0.557645	0.560576	0.563761	0.567210	0.570923	0.574897
0.42	0.562551	0.564514	0.566682	0.569063	0.571668	0.574507	0.577592	0.580931	0.584529	0.588385
0.43	0.576976	0.578886	0.580994	0.583307	0.585835	0.588589	0.591578	0.594814	0.598301	0.602041
0.44	0.591535	0.593394	0.595445	0.597694	0.600150	0.602822	0.605722	0.608858	0.612239	0.615868
0.45	0.606233	0.608043	0.610039	0.612228	0.614616	0.617211	0.620025	0.623068	0.626347	0.629868
0.46	0.621074	0.622838	0.624782	0.626913	0.629236	0.631759	0.634492	0.637446	0.640628	0.644045
0.47	0.636064	0.637783	0.639678	0.641754	0.644015	0.646470	0.649127	0.651995	0.655085	0.658403
0.48	0.651209	0.652885	0.654733	0.656755	0.658958	0.661348	0.663932	0.666720	0.669721	0.672944
0.49	0.666514	0.668149	0.669951	0.671924	0.674070	0.676398	0.678913	0.681625	0.684542	0.687673
0.50	0.681985	0.683582	0.685340	0.687264	0.689357	0.691626	0.694076	0.696715	0.699552	0.702596

K = K(V,c) where probability P = V(K,c)

V\c	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19
0.50	0.681985	0.683582	0.685340	0.687264	0.689357	0.691626	0.694076	0.696715	0.699552	0.702596
0.51	0.697630	0.699189	0.700906	0.702783	0.704825	0.707037	0.709425	0.711995	0.714756	0.717716
0.52	0.713456	0.714979	0.716655	0.718488	0.720481	0.722639	0.724966	0.727471	0.730159	0.733040
0.53	0.729471	0.730958	0.732596	0.734386	0.736332	0.738437	0.740708	0.743149	0.745769	0.748574
0.54	0.745682	0.747136	0.748735	0.750484	0.752385	0.754441	0.756657	0.759038	0.761591	0.764324
0.55	0.762099	0.763520	0.765083	0.766792	0.768649	0.770657	0.772820	0.775144	0.777634	0.780298
0.56	0.778730	0.780120	0.781648	0.783319	0.785133	0.787095	0.789208	0.791477	0.793906	0.796503
0.57	0.795587	0.796945	0.798440	0.800073	0.801847	0.803764	0.805829	0.808044	0.810416	0.812949
0.58	0.812678	0.814007	0.815470	0.817067	0.818801	0.820675	0.822693	0.824857	0.827173	0.829646
0.59	0.830017	0.831317	0.832748	0.834310	0.836006	0.837838	0.839811	0.841926	0.844188	0.846602
0.60	0.847615	0.848887	0.850286	0.851815	0.853474	0.855266	0.857194	0.859262	0.861472	0.863830
0.61	0.865484	0.866730	0.868099	0.869594	0.871218	0.872971	0.874857	0.876878	0.879038	0.881342
0.62	0.883640	0.884859	0.886199	0.887663	0.889251	0.890966	0.892811	0.894788	0.896900	0.899151
0.63	0.902097	0.903291	0.904603	0.906035	0.907589	0.909268	0.911072	0.913006	0.915071	0.917272
0.64	0.920872	0.922040	0.923325	0.924727	0.926248	0.927891	0.929657	0.931548	0.933568	0.935720
0.65	0.939982	0.941126	0.942384	0.943756	0.945246	0.946853	0.948581	0.950432	0.952408	0.954513
0.66	0.959447	0.960567	0.961798	0.963142	0.964600	0.966174	0.967865	0.969676	0.971609	0.973668
0.67	0.979287	0.980384	0.981589	0.982905	0.984332	0.985873	0.987528	0.989300	0.991192	0.993206
0.68	0.999524	1.000599	1.001779	1.003067	1.004465	1.005973	1.007593	1.009328	1.011179	1.013149
0.69	1.020184	1.021236	1.022392	1.023654	1.025022	1.026498	1.028084	1.029782	1.031594	1.033521
0.70	1.041294	1.042324	1.043456	1.044691	1.046031	1.047476	1.049028	1.050690	1.052463	1.054349
0.71	1.062882	1.063891	1.064999	1.066209	1.067520	1.068935	1.070456	1.072081	1.073816	1.075662
0.72	1.084981	1.085969	1.087055	1.088239	1.089523	1.090908	1.092396	1.093988	1.095686	1.097492
0.73	1.107628	1.108595	1.109658	1.110817	1.112074	1.113430	1.114887	1.116445	1.118107	1.119874
0.74	1.130862	1.131809	1.132849	1.133984	1.135215	1.136542	1.137967	1.139492	1.141119	1.142848
0.75	1.154726	1.155653	1.156672	1.157783	1.158988	1.160287	1.161682	1.163174	1.164765	1.166457
0.76	1.179272	1.180179	1.181176	1.182264	1.183442	1.184714	1.186079	1.187539	1.189096	1.190751
0.77	1.204553	1.205441	1.206417	1.207481	1.208634	1.209878	1.211214	1.212643	1.214166	1.215785
0.78	1.230632	1.231501	1.232456	1.233497	1.234626	1.235843	1.237149	1.238547	1.240036	1.241620
0.79	1.257581	1.258431	1.259365	1.260383	1.261487	1.262678	1.263955	1.265322	1.266779	1.268327
0.80	1.285479	1.286310	1.287224	1.288220	1.289299	1.290463	1.291713	1.293049	1.294473	1.295986
0.81	1.314419	1.315232	1.316125	1.317099	1.318154	1.319292	1.320513	1.321819	1.323211	1.324690
0.82	1.344508	1.345303	1.346176	1.347127	1.348158	1.349270	1.350464	1.351740	1.353099	1.354544
0.83	1.375871	1.376647	1.377500	1.378429	1.379436	1.380523	1.381688	1.382934	1.384262	1.385673
0.84	1.408653	1.409411	1.410243	1.411151	1.412134	1.413194	1.414332	1.415549	1.416845	1.418222
0.85	1.443027	1.443766	1.444579	1.445464	1.446424	1.447459	1.448569	1.449756	1.451021	1.452364
0.86	1.479200	1.479921	1.480714	1.481577	1.482513	1.483522	1.484605	1.485762	1.486996	1.488305
0.87	1.517425	1.518128	1.518900	1.519741	1.520653	1.521637	1.522692	1.523819	1.525021	1.526297
0.88	1.558009	1.558694	1.559445	1.560265	1.561153	1.562110	1.563137	1.564235	1.565404	1.566646
0.89	1.601341	1.602006	1.602738	1.603535	1.604398	1.605329	1.606328	1.607396	1.608533	1.609741
0.90	1.647912	1.648558	1.649269	1.650043	1.650882	1.651786	1.652757	1.653794	1.654898	1.656071
0.91	1.698364	1.698992	1.699681	1.700432	1.701246	1.702123	1.703064	1.704070	1.705141	1.706278
0.92	1.753559	1.754166	1.754834	1.755561	1.756349	1.757198	1.758109	1.759083	1.760120	1.761221
0.93	1.814686	1.815273	1.815918	1.816620	1.817382	1.818202	1.819082	1.820022	1.821024	1.822087
0.94	1.883467	1.884033	1.884654	1.885330	1.886064	1.886854	1.887701	1.888607	1.889571	1.890595
0.95	1.962530	1.963072	1.963668	1.964317	1.965020	1.965778	1.966591	1.967460	1.968385	1.969367
0.96	2.056197	2.056715	2.057283	2.057903	2.058574	2.059297	2.060073	2.060901	2.061784	2.062721
0.97	2.172407	2.172897	2.173435	2.174021	2.174656	2.175340	2.176074	2.176858	2.177693	2.178579
0.98	2.328509	2.328966	2.329467	2.330014	2.330606	2.331244	2.331929	2.332660	2.333438	2.334264
0.99	2.577781	2.578193	2.578646	2.579140	2.579675	2.580251	2.580868	2.581528	2.582231	2.582977

K = K(V,c) where probability P = V(K,c)

V\c	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29
0.01	0.063661	0.065214	0.066731	0.068215	0.069667	0.071090	0.072484	0.073853	0.075196	0.076516
0.02	0.090630	0.092814	0.094948	0.097035	0.099079	0.101081	0.103045	0.104973	0.106866	0.108726
0.03	0.111749	0.114407	0.117005	0.119548	0.122038	0.124479	0.126874	0.129224	0.131533	0.133803
0.04	0.129922	0.132971	0.135953	0.138871	0.141731	0.144536	0.147287	0.149990	0.152645	0.155255
0.05	0.146269	0.149653	0.152965	0.156208	0.159387	0.162506	0.165567	0.168574	0.171530	0.174437
0.06	0.161361	0.165041	0.168643	0.172173	0.175635	0.179032	0.182368	0.185646	0.188868	0.192039
0.07	0.175539	0.179482	0.183345	0.187131	0.190846	0.194494	0.198077	0.201599	0.205063	0.208472
0.08	0.189025	0.193204	0.197301	0.201320	0.205265	0.209140	0.212948	0.216692	0.220377	0.224004
0.09	0.201972	0.206365	0.210674	0.214904	0.219058	0.223141	0.227155	0.231105	0.234992	0.238819
0.10	0.214493	0.219079	0.223581	0.228004	0.232350	0.236624	0.240828	0.244966	0.249040	0.253054
0.11	0.226674	0.231435	0.236113	0.240711	0.245234	0.249683	0.254063	0.258375	0.262623	0.266810
0.12	0.238581	0.243500	0.248338	0.253098	0.257782	0.262393	0.266935	0.271409	0.275819	0.280166
0.13	0.250269	0.255331	0.260314	0.265220	0.270053	0.274814	0.279505	0.284130	0.288690	0.293187
0.14	0.261783	0.266972	0.272086	0.277126	0.282094	0.286993	0.291823	0.296587	0.301287	0.305925
0.15	0.273158	0.278460	0.283692	0.288854	0.293946	0.298971	0.303929	0.308823	0.313653	0.318422
0.16	0.284428	0.289829	0.295166	0.300437	0.305643	0.310783	0.315859	0.320872	0.325824	0.330716
0.17	0.295618	0.301106	0.306536	0.311905	0.317212	0.322458	0.327642	0.332767	0.337831	0.342837
0.18	0.306754	0.312316	0.317826	0.323281	0.328680	0.334022	0.339305	0.344531	0.349700	0.354812
0.19	0.317856	0.323478	0.329057	0.334588	0.340069	0.345497	0.350870	0.356190	0.361455	0.366665
0.20	0.328943	0.334614	0.340250	0.345847	0.351398	0.356903	0.362358	0.367763	0.373116	0.378418
0.21	0.340032	0.345739	0.351422	0.357073	0.362686	0.368259	0.373787	0.379268	0.384702	0.390089
0.22	0.351138	0.356870	0.362588	0.368284	0.373949	0.379580	0.385172	0.390723	0.396231	0.401693
0.23	0.362276	0.368021	0.373764	0.379493	0.385201	0.390882	0.396530	0.402143	0.407716	0.413249
0.24	0.373459	0.379205	0.384961	0.390715	0.396457	0.402179	0.407876	0.413541	0.419173	0.424769
0.25	0.384698	0.390435	0.396194	0.401962	0.407728	0.413482	0.419218	0.424930	0.430614	0.436266
0.26	0.396004	0.401721	0.407473	0.413246	0.419027	0.424805	0.430573	0.436324	0.442052	0.447754
0.27	0.407388	0.413074	0.418809	0.424578	0.430364	0.436158	0.441950	0.447732	0.453498	0.459243
0.28	0.418859	0.424503	0.430212	0.435967	0.441751	0.447552	0.453360	0.459166	0.464962	0.470744
0.29	0.430425	0.436019	0.441692	0.447424	0.453197	0.458997	0.464813	0.470635	0.476456	0.482268
0.30	0.442096	0.447630	0.453258	0.458958	0.464711	0.470502	0.476319	0.482151	0.487988	0.493824
0.31	0.453877	0.459343	0.464917	0.470577	0.476303	0.482077	0.487887	0.493721	0.499568	0.505421
0.32	0.465777	0.471167	0.476679	0.482291	0.487980	0.493730	0.499526	0.505355	0.511205	0.517069
0.33	0.477802	0.483108	0.488551	0.494106	0.499752	0.505470	0.511244	0.517061	0.522908	0.528777
0.34	0.489957	0.495173	0.500539	0.506031	0.511626	0.517305	0.523050	0.528848	0.534686	0.540552
0.35	0.502249	0.507368	0.512651	0.518073	0.523609	0.529242	0.534952	0.540724	0.546546	0.552404
0.36	0.514682	0.519700	0.524894	0.530238	0.535710	0.541289	0.546957	0.552698	0.558496	0.564341
0.37	0.527261	0.532173	0.537273	0.542534	0.547935	0.553455	0.559074	0.564776	0.570545	0.576370
0.38	0.539990	0.544794	0.549794	0.554967	0.560291	0.565745	0.571309	0.576966	0.582701	0.588499
0.39	0.552874	0.557566	0.562463	0.567544	0.572785	0.578168	0.583671	0.589277	0.594970	0.600737
0.40	0.565917	0.570495	0.575286	0.580269	0.585424	0.590729	0.596165	0.601715	0.607362	0.613090
0.41	0.579122	0.583584	0.588267	0.593149	0.598213	0.603436	0.608801	0.614288	0.619882	0.625567
0.42	0.592492	0.596839	0.601411	0.606190	0.611158	0.616296	0.621583	0.627004	0.632540	0.638176
0.43	0.606032	0.610264	0.614724	0.619398	0.624267	0.629314	0.634520	0.639868	0.645341	0.650924
0.44	0.619744	0.623862	0.628210	0.632776	0.637545	0.642498	0.647619	0.652890	0.658295	0.663818
0.45	0.633633	0.637637	0.641874	0.646332	0.650997	0.655853	0.660885	0.666076	0.671408	0.676867
0.46	0.647701	0.651595	0.655721	0.660070	0.664630	0.669387	0.674327	0.679432	0.684688	0.690079
0.47	0.661954	0.665739	0.669755	0.673995	0.678450	0.683106	0.687950	0.692968	0.698143	0.703461
0.48	0.676393	0.680073	0.683981	0.688113	0.692462	0.697016	0.701763	0.706689	0.711780	0.717021
0.49	0.691025	0.694602	0.698404	0.702430	0.706672	0.711123	0.715771	0.720603	0.725607	0.730767
0.50	0.705854	0.709331	0.713030	0.716950	0.721088	0.725434	0.729982	0.734718	0.739631	0.744708

K = K(V,c) where probability P = V(K,c)

V\c	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29
0.50	0.705854	0.709331	0.713030	0.716950	0.721088	0.725434	0.729982	0.734718	0.739631	0.744708
0.51	0.720884	0.724266	0.727864	0.731681	0.735714	0.739957	0.744403	0.749042	0.753862	0.758852
0.52	0.736122	0.739411	0.742912	0.746628	0.750557	0.754697	0.759042	0.763582	0.768308	0.773208
0.53	0.751573	0.754773	0.758180	0.761797	0.765625	0.769663	0.773906	0.778346	0.782976	0.787784
0.54	0.767244	0.770359	0.773674	0.777196	0.780925	0.784862	0.789003	0.793343	0.797875	0.802590
0.55	0.783142	0.786175	0.789403	0.792831	0.796463	0.800301	0.804341	0.808582	0.813015	0.817635
0.56	0.799275	0.802229	0.805373	0.808711	0.812249	0.815989	0.819930	0.824071	0.828406	0.832929
0.57	0.815652	0.818531	0.821593	0.824844	0.828291	0.831935	0.835778	0.839820	0.844056	0.848482
0.58	0.832282	0.835088	0.838072	0.841240	0.844597	0.848148	0.851895	0.855839	0.859977	0.864305
0.59	0.849174	0.851912	0.854820	0.857907	0.861178	0.864639	0.868292	0.872139	0.876179	0.880410
0.60	0.866341	0.869012	0.871848	0.874857	0.878045	0.881418	0.884979	0.888731	0.892674	0.896808
0.61	0.883795	0.886401	0.889168	0.892102	0.895210	0.898497	0.901968	0.905627	0.909475	0.913511
0.62	0.901547	0.904092	0.906792	0.909654	0.912684	0.915889	0.919273	0.922840	0.926594	0.930535
0.63	0.919613	0.922099	0.924735	0.927527	0.930482	0.933607	0.936906	0.940385	0.944046	0.947892
0.64	0.938008	0.940436	0.943010	0.945736	0.948619	0.951666	0.954883	0.958275	0.961846	0.965598
0.65	0.956749	0.959122	0.961636	0.964297	0.967111	0.970083	0.973220	0.976528	0.980010	0.983670
0.66	0.975855	0.978174	0.980631	0.983229	0.985975	0.988876	0.991935	0.995161	0.998557	1.002127
0.67	0.995345	0.997612	1.000013	1.002551	1.005232	1.008063	1.011048	1.014194	1.017505	1.020987
0.68	1.015241	1.017458	1.019805	1.022285	1.024903	1.027666	1.030579	1.033647	1.036877	1.040273
0.69	1.035568	1.037736	1.040030	1.042453	1.045011	1.047709	1.050551	1.053545	1.056695	1.060007
0.70	1.056351	1.058472	1.060715	1.063084	1.065583	1.068217	1.070991	1.073912	1.076985	1.080215
0.71	1.077621	1.079695	1.081888	1.084204	1.086645	1.089218	1.091927	1.094778	1.097775	1.100925
0.72	1.099408	1.101437	1.103582	1.105845	1.108232	1.110745	1.113390	1.116172	1.119096	1.122169
0.73	1.121749	1.123733	1.125831	1.128044	1.130376	1.132831	1.135414	1.138130	1.140984	1.143981
0.74	1.144682	1.146623	1.148674	1.150838	1.153117	1.155516	1.158039	1.160690	1.163475	1.166398
0.75	1.168251	1.170150	1.172156	1.174271	1.176499	1.178843	1.181307	1.183896	1.186613	1.189465
0.76	1.192506	1.194363	1.196325	1.198393	1.200570	1.202861	1.205267	1.207795	1.210447	1.213229
0.77	1.217501	1.219317	1.221235	1.223256	1.225385	1.227622	1.229973	1.232441	1.235029	1.237744
0.78	1.243298	1.245074	1.246949	1.248925	1.251004	1.253191	1.255487	1.257896	1.260422	1.263070
0.79	1.269968	1.271704	1.273536	1.275467	1.277499	1.279635	1.281877	1.284229	1.286695	1.289278
0.80	1.297590	1.299287	1.301077	1.302964	1.304949	1.307035	1.309225	1.311521	1.313927	1.316446
0.81	1.326257	1.327915	1.329664	1.331507	1.333446	1.335483	1.337620	1.339861	1.342209	1.344666
0.82	1.356075	1.357694	1.359403	1.361203	1.363096	1.365084	1.367170	1.369356	1.371646	1.374043
0.83	1.387168	1.388749	1.390417	1.392174	1.394021	1.395962	1.397997	1.400130	1.402363	1.404699
0.84	1.419682	1.421224	1.422852	1.424566	1.426368	1.428261	1.430246	1.432326	1.434502	1.436779
0.85	1.453788	1.455292	1.456880	1.458551	1.460309	1.462154	1.464089	1.466116	1.468237	1.470455
0.86	1.489693	1.491160	1.492707	1.494336	1.496049	1.497847	1.499732	1.501706	1.503772	1.505931
0.87	1.527648	1.529077	1.530584	1.532171	1.533839	1.535589	1.537424	1.539346	1.541356	1.543457
0.88	1.567962	1.569353	1.570819	1.572363	1.573986	1.575689	1.577474	1.579343	1.581298	1.583341
0.89	1.611020	1.612372	1.613798	1.615299	1.616876	1.618531	1.620266	1.622082	1.623981	1.625965
0.90	1.657313	1.658626	1.660011	1.661468	1.662999	1.664606	1.666289	1.668052	1.669894	1.671819
0.91	1.707483	1.708756	1.710098	1.711511	1.712995	1.714553	1.716184	1.717892	1.719678	1.721543
0.92	1.762387	1.763619	1.764918	1.766285	1.767721	1.769228	1.770807	1.772459	1.774186	1.775989
0.93	1.823213	1.824403	1.825657	1.826977	1.828364	1.829819	1.831342	1.832937	1.834603	1.836343
0.94	1.891679	1.892825	1.894033	1.895303	1.896638	1.898038	1.899505	1.901039	1.902643	1.904317
0.95	1.970408	1.971506	1.972664	1.973883	1.975163	1.976505	1.977911	1.979382	1.980919	1.982523
0.96	2.063713	2.064761	2.065865	2.067027	2.068248	2.069528	2.070868	2.072270	2.073735	2.075264
0.97	2.179518	2.180509	2.181553	2.182652	2.183806	2.185016	2.186284	2.187609	2.188993	2.190438
0.98	2.335139	2.336063	2.337037	2.338061	2.339136	2.340264	2.341445	2.342680	2.343969	2.345315
0.99	2.583766	2.584600	2.585478	2.586402	2.587373	2.588390	2.589456	2.590568	2.591731	2.592945

K = K(V,c) where probability P = V(K,c)

V\c	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39
0.01	0.077814	0.079091	0.080347	0.081584	0.082803	0.084004	0.085188	0.086356	0.087508	0.088646
0.02	0.110555	0.112355	0.114126	0.115871	0.117590	0.119284	0.120955	0.122603	0.124229	0.125835
0.03	0.136036	0.138232	0.140395	0.142525	0.144625	0.146694	0.148736	0.150750	0.152737	0.154700
0.04	0.157824	0.160351	0.162841	0.165293	0.167710	0.170093	0.172444	0.174764	0.177055	0.179316
0.05	0.177297	0.180113	0.182886	0.185619	0.188313	0.190970	0.193592	0.196179	0.198734	0.201257
0.06	0.195159	0.198232	0.201259	0.204243	0.207185	0.210087	0.212951	0.215778	0.218570	0.221327
0.07	0.211828	0.215134	0.218392	0.221603	0.224771	0.227896	0.230980	0.234025	0.237033	0.240004
0.08	0.227576	0.231095	0.234564	0.237985	0.241359	0.244689	0.247976	0.251223	0.254429	0.257598
0.09	0.242590	0.246307	0.249971	0.253585	0.257152	0.260672	0.264148	0.267581	0.270973	0.274325
0.10	0.257009	0.260909	0.264755	0.268550	0.272295	0.275992	0.279644	0.283252	0.286817	0.290341
0.11	0.270937	0.275007	0.279023	0.282986	0.286899	0.290763	0.294580	0.298352	0.302080	0.305766
0.12	0.284454	0.288684	0.292859	0.296980	0.301050	0.305071	0.309043	0.312970	0.316852	0.320690
0.13	0.297625	0.302005	0.306329	0.310599	0.314818	0.318986	0.323105	0.327178	0.331205	0.335188
0.14	0.310503	0.315024	0.319488	0.323899	0.328257	0.332564	0.336823	0.341034	0.345199	0.349320
0.15	0.323132	0.327785	0.332382	0.336924	0.341414	0.345854	0.350244	0.354587	0.358883	0.363135
0.16	0.335549	0.340326	0.345047	0.349714	0.354329	0.358894	0.363409	0.367877	0.372298	0.376674
0.17	0.347786	0.352678	0.357517	0.362302	0.367035	0.371718	0.376352	0.380938	0.385478	0.389973
0.18	0.359869	0.364870	0.369819	0.374715	0.379560	0.384355	0.389102	0.393801	0.398455	0.403063
0.19	0.371822	0.376926	0.381978	0.386979	0.391930	0.396832	0.401685	0.406492	0.411253	0.415970
0.20	0.383668	0.388868	0.394017	0.399116	0.404167	0.409169	0.414124	0.419034	0.423898	0.428718
0.21	0.395425	0.400714	0.405954	0.411145	0.416290	0.421388	0.426440	0.431446	0.436408	0.441327
0.22	0.407110	0.412481	0.417806	0.423085	0.428318	0.433506	0.438649	0.443748	0.448804	0.453816
0.23	0.418739	0.424187	0.429591	0.434951	0.440267	0.445540	0.450769	0.455956	0.461100	0.466203
0.24	0.430326	0.435844	0.441321	0.446757	0.452151	0.457504	0.462815	0.468085	0.473314	0.478502
0.25	0.441885	0.447467	0.453011	0.458518	0.463985	0.469413	0.474801	0.480149	0.485458	0.490728
0.26	0.453427	0.459067	0.464674	0.470245	0.475780	0.481278	0.486738	0.492161	0.497546	0.502893
0.27	0.464964	0.470657	0.476320	0.481951	0.487548	0.493112	0.498640	0.504133	0.509589	0.515010
0.28	0.476507	0.482246	0.487960	0.493646	0.499301	0.504925	0.510517	0.516075	0.521600	0.527090
0.29	0.488066	0.493847	0.499606	0.505341	0.511049	0.516729	0.522380	0.528000	0.533588	0.539144
0.30	0.499652	0.505467	0.511266	0.517045	0.522802	0.528533	0.534238	0.539916	0.545564	0.551182
0.31	0.511273	0.517118	0.522951	0.528769	0.534569	0.540347	0.546103	0.551833	0.557537	0.563213
0.32	0.522939	0.528807	0.534670	0.540522	0.546360	0.552180	0.557981	0.563760	0.569516	0.575247
0.33	0.534658	0.540544	0.546431	0.552311	0.558183	0.564041	0.569883	0.575707	0.581511	0.587292
0.34	0.546439	0.552338	0.558242	0.564147	0.570047	0.575938	0.581817	0.587682	0.593529	0.599358
0.35	0.558291	0.564196	0.570113	0.576036	0.581960	0.587880	0.593792	0.599693	0.605580	0.611452
0.36	0.570221	0.576127	0.582052	0.587988	0.593931	0.599874	0.605815	0.611748	0.617672	0.623583
0.37	0.582238	0.588139	0.594066	0.600011	0.605968	0.611930	0.617894	0.623856	0.629812	0.635758
0.38	0.594349	0.600241	0.606164	0.612112	0.618078	0.624055	0.630039	0.636024	0.642008	0.647987
0.39	0.606563	0.612439	0.618354	0.624300	0.630270	0.636257	0.642256	0.648261	0.654269	0.660276
0.40	0.618887	0.624742	0.630643	0.636583	0.642562	0.648544	0.654554	0.660575	0.666603	0.672634
0.41	0.631330	0.637158	0.643040	0.648968	0.654932	0.660925	0.666940	0.672972	0.679016	0.685068
0.42	0.643898	0.649694	0.655553	0.661463	0.667417	0.673406	0.679423	0.685462	0.691518	0.697586
0.43	0.656601	0.662360	0.668189	0.674077	0.680015	0.685996	0.692010	0.698052	0.704116	0.710197
0.44	0.669445	0.675161	0.680956	0.686817	0.692736	0.698703	0.704710	0.710751	0.716818	0.722908
0.45	0.682438	0.688108	0.693863	0.699693	0.705587	0.711535	0.717531	0.723566	0.729633	0.735727
0.46	0.695590	0.701207	0.706918	0.712711	0.718575	0.724502	0.730481	0.736505	0.742568	0.748663
0.47	0.708907	0.714467	0.720129	0.725881	0.731711	0.737610	0.743569	0.749579	0.755633	0.761724
0.48	0.722398	0.727897	0.733505	0.739211	0.745002	0.750870	0.756803	0.762794	0.768835	0.774920
0.49	0.736071	0.741505	0.747055	0.752710	0.758458	0.764289	0.770193	0.776161	0.782185	0.788258
0.50	0.749935	0.755299	0.760787	0.766387	0.772087	0.777877	0.783747	0.789688	0.795690	0.801748

K = K(V,c) where probability P = V(K,c)

V\c	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39
0.50	0.749935	0.755299	0.760787	0.766387	0.772087	0.777877	0.783747	0.789688	0.795690	0.801748
0.51	0.763999	0.769289	0.774711	0.780251	0.785900	0.791645	0.797476	0.803384	0.809361	0.815399
0.52	0.778271	0.783484	0.788835	0.794313	0.799904	0.805600	0.811388	0.817261	0.823208	0.829222
0.53	0.792761	0.797893	0.803171	0.808581	0.814112	0.819753	0.825495	0.831327	0.837240	0.843226
0.54	0.807478	0.812527	0.817727	0.823065	0.828532	0.834116	0.839806	0.845594	0.851468	0.857422
0.55	0.822431	0.827394	0.832513	0.837778	0.843176	0.848698	0.854333	0.860072	0.865904	0.871822
0.56	0.837632	0.842507	0.847542	0.852728	0.858055	0.863511	0.869087	0.874772	0.880558	0.886436
0.57	0.853091	0.857875	0.862824	0.867929	0.873180	0.878567	0.884080	0.889708	0.895443	0.901276
0.58	0.868819	0.873510	0.878371	0.883392	0.888564	0.893878	0.899324	0.904892	0.910572	0.916356
0.59	0.884827	0.889424	0.894194	0.899129	0.904220	0.909458	0.914833	0.920336	0.925958	0.931689
0.60	0.901128	0.905630	0.910308	0.915154	0.920161	0.925319	0.930620	0.936055	0.941614	0.947289
0.61	0.917735	0.922141	0.926725	0.931481	0.936401	0.941477	0.946700	0.952063	0.957556	0.963171
0.62	0.934661	0.938971	0.943461	0.948124	0.952955	0.957946	0.963089	0.968377	0.973800	0.979350
0.63	0.951922	0.956136	0.960529	0.965099	0.969839	0.974743	0.979803	0.985012	0.990361	0.995844
0.64	0.969533	0.973650	0.977948	0.982423	0.987070	0.991884	0.996859	1.001986	1.007259	1.012670
0.65	0.987511	0.991533	0.995735	1.000114	1.004667	1.009390	1.014276	1.019319	1.024512	1.029847
0.66	1.005875	1.009802	1.013907	1.018191	1.022649	1.027278	1.032074	1.037030	1.042140	1.047397
0.67	1.024644	1.028476	1.032486	1.036674	1.041036	1.045571	1.050274	1.055141	1.060165	1.065340
0.68	1.043839	1.047579	1.051494	1.055585	1.059852	1.064291	1.068900	1.073675	1.078610	1.083701
0.69	1.063485	1.067134	1.070955	1.074950	1.079120	1.083463	1.087976	1.092658	1.097503	1.102506
0.70	1.083607	1.087166	1.090894	1.094794	1.098867	1.103113	1.107531	1.112117	1.116869	1.121782
0.71	1.104233	1.107704	1.111340	1.115146	1.119123	1.123272	1.127592	1.132082	1.136739	1.141559
0.72	1.125395	1.128779	1.132325	1.136038	1.139920	1.143971	1.148194	1.152586	1.157146	1.161871
0.73	1.147126	1.150426	1.153884	1.157505	1.161291	1.165246	1.169370	1.173664	1.178126	1.182754
0.74	1.169466	1.172683	1.176054	1.179584	1.183277	1.187136	1.191162	1.195356	1.199719	1.204249
0.75	1.192456	1.195593	1.198879	1.202320	1.205920	1.209683	1.213611	1.217706	1.221969	1.226399
0.76	1.216146	1.219204	1.222407	1.225760	1.229269	1.232937	1.236768	1.240763	1.244925	1.249254
0.77	1.240588	1.243569	1.246691	1.249958	1.253377	1.256952	1.260686	1.264582	1.268642	1.272869
0.78	1.265844	1.268750	1.271792	1.274976	1.278306	1.281788	1.285426	1.289223	1.293183	1.297306
0.79	1.291983	1.294815	1.297780	1.300881	1.304125	1.307515	1.311058	1.314757	1.318615	1.322636
0.80	1.319084	1.321845	1.324733	1.327753	1.330911	1.334213	1.337661	1.341263	1.345020	1.348937
0.81	1.347238	1.349928	1.352741	1.355683	1.358757	1.361970	1.365326	1.368831	1.372488	1.376301
0.82	1.376550	1.379171	1.381911	1.384775	1.387767	1.390893	1.394158	1.397566	1.401123	1.404833
0.83	1.407142	1.409696	1.412364	1.415151	1.418063	1.421103	1.424278	1.427592	1.431050	1.434657
0.84	1.439159	1.441646	1.444244	1.446956	1.449788	1.452745	1.455830	1.459051	1.462410	1.465915
0.85	1.472773	1.475194	1.477721	1.480360	1.483114	1.485987	1.488985	1.492113	1.495375	1.498778
0.86	1.508187	1.510543	1.513001	1.515567	1.518243	1.521035	1.523946	1.526982	1.530149	1.533450
0.87	1.545652	1.547943	1.550333	1.552826	1.555426	1.558136	1.560962	1.563907	1.566978	1.570179
0.88	1.585474	1.587700	1.590022	1.592443	1.594966	1.597596	1.600337	1.603193	1.606168	1.609269
0.89	1.628036	1.630197	1.632451	1.634800	1.637248	1.639798	1.642453	1.645220	1.648101	1.651101
0.90	1.673829	1.675925	1.678109	1.680386	1.682758	1.685227	1.687798	1.690475	1.693262	1.696163
0.91	1.723489	1.725518	1.727634	1.729837	1.732132	1.734521	1.737007	1.739594	1.742285	1.745086
0.92	1.777871	1.779833	1.781877	1.784007	1.786223	1.788530	1.790930	1.793426	1.796022	1.798722
0.93	1.838159	1.840051	1.842023	1.844076	1.846212	1.848435	1.850747	1.853150	1.855649	1.858246
0.94	1.906063	1.907883	1.909779	1.911753	1.913806	1.915942	1.918162	1.920470	1.922868	1.925360
0.95	1.984196	1.985940	1.987756	1.989646	1.991612	1.993656	1.995781	1.997989	2.000282	2.002664
0.96	2.076858	2.078520	2.080250	2.082050	2.083922	2.085868	2.087890	2.089990	2.092171	2.094436
0.97	2.191945	2.193515	2.195149	2.196849	2.198617	2.200454	2.202362	2.204344	2.206401	2.208536
0.98	2.346718	2.348180	2.349701	2.351284	2.352929	2.354638	2.356413	2.358255	2.360167	2.362151
0.99	2.594209	2.595526	2.596897	2.598322	2.599804	2.601342	2.602940	2.604598	2.606318	2.608101

K = K(V,c) where probability P = V(K,c)

V\c	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49
0.01	0.089769	0.090878	0.091974	0.093058	0.094128	0.095187	0.096234	0.097270	0.098295	0.099310
0.02	0.127420	0.128987	0.130534	0.132064	0.133576	0.135072	0.136551	0.138015	0.139463	0.140897
0.03	0.156638	0.158553	0.160445	0.162316	0.164166	0.165995	0.167805	0.169595	0.171367	0.173122
0.04	0.181550	0.183757	0.185938	0.188095	0.190228	0.192337	0.194424	0.196490	0.198534	0.200558
0.05	0.203749	0.206212	0.208647	0.211054	0.213435	0.215790	0.218120	0.220427	0.222710	0.224971
0.06	0.224051	0.226744	0.229406	0.232039	0.234643	0.237219	0.239769	0.242292	0.244791	0.247265
0.07	0.242940	0.245843	0.248713	0.251551	0.254359	0.257138	0.259888	0.262610	0.265306	0.267975
0.08	0.260730	0.263826	0.266888	0.269917	0.272914	0.275880	0.278815	0.281722	0.284600	0.287451
0.09	0.277639	0.280916	0.284157	0.287363	0.290536	0.293677	0.296786	0.299864	0.302913	0.305934
0.10	0.293826	0.297272	0.300681	0.304054	0.307392	0.310697	0.313969	0.317210	0.320420	0.323600
0.11	0.309411	0.313016	0.316584	0.320114	0.323609	0.327069	0.330495	0.333889	0.337251	0.340582
0.12	0.324487	0.328244	0.331961	0.335640	0.339283	0.342891	0.346463	0.350002	0.353509	0.356984
0.13	0.339129	0.343029	0.346889	0.350710	0.354494	0.358241	0.361953	0.365631	0.369275	0.372887
0.14	0.353398	0.357434	0.361429	0.365385	0.369303	0.373184	0.377030	0.380840	0.384616	0.388359
0.15	0.367343	0.371509	0.375633	0.379719	0.383765	0.387774	0.391746	0.395683	0.399586	0.403455
0.16	0.381006	0.385296	0.389545	0.393753	0.397923	0.402054	0.406149	0.410207	0.414231	0.418221
0.17	0.394424	0.398833	0.403200	0.407526	0.411814	0.416063	0.420275	0.424450	0.428591	0.432697
0.18	0.407627	0.412149	0.416630	0.421070	0.425470	0.429832	0.434157	0.438445	0.442698	0.446916
0.19	0.420643	0.425273	0.429862	0.434411	0.438920	0.443391	0.447825	0.452222	0.456583	0.460909
0.20	0.433494	0.438229	0.442922	0.447575	0.452189	0.456765	0.461303	0.465804	0.470270	0.474701
0.21	0.446203	0.451037	0.455830	0.460584	0.465298	0.469975	0.474614	0.479216	0.483783	0.488315
0.22	0.458787	0.463717	0.468606	0.473456	0.478267	0.483041	0.487777	0.492477	0.497141	0.501771
0.23	0.471264	0.476286	0.481267	0.486210	0.491114	0.495981	0.500811	0.505605	0.510364	0.515088
0.24	0.483650	0.488759	0.493829	0.498860	0.503854	0.508811	0.513732	0.518617	0.523467	0.528283
0.25	0.495959	0.501151	0.506306	0.511423	0.516503	0.521546	0.526555	0.531528	0.536466	0.541371
0.26	0.508203	0.513475	0.518711	0.523910	0.529073	0.534200	0.539293	0.544351	0.549375	0.554365
0.27	0.520395	0.525744	0.531057	0.536335	0.541577	0.546785	0.551959	0.557099	0.562205	0.567279
0.28	0.532546	0.537968	0.543355	0.548708	0.554028	0.559313	0.564565	0.569784	0.574971	0.580125
0.29	0.544668	0.550159	0.555617	0.561042	0.566435	0.571795	0.577122	0.582418	0.587682	0.592914
0.30	0.556770	0.562326	0.567852	0.573346	0.578809	0.584241	0.589641	0.595010	0.600348	0.605656
0.31	0.568861	0.574480	0.580070	0.585630	0.591160	0.596661	0.602131	0.607571	0.612981	0.618362
0.32	0.580952	0.586630	0.592281	0.597903	0.603498	0.609064	0.614601	0.620110	0.625590	0.631041
0.33	0.593050	0.598784	0.604492	0.610175	0.615831	0.621460	0.627062	0.632636	0.638183	0.643703
0.34	0.605166	0.610952	0.616714	0.622453	0.628168	0.633857	0.639520	0.645158	0.650770	0.656355
0.35	0.617306	0.623141	0.628955	0.634747	0.640517	0.646263	0.651986	0.657684	0.663358	0.669007
0.36	0.629479	0.635359	0.641221	0.647064	0.652887	0.658688	0.664467	0.670223	0.675957	0.681667
0.37	0.641694	0.647616	0.653523	0.659413	0.665285	0.671138	0.676970	0.682782	0.688573	0.694342
0.38	0.653958	0.659918	0.665867	0.671801	0.677720	0.683621	0.689505	0.695370	0.701216	0.707041
0.39	0.666279	0.672275	0.678261	0.684336	0.690199	0.696147	0.702079	0.707994	0.713892	0.719771
0.40	0.678665	0.684692	0.690713	0.696727	0.702730	0.708721	0.714699	0.720662	0.726610	0.732541
0.41	0.691123	0.697179	0.703232	0.709280	0.715321	0.721352	0.727373	0.733381	0.739377	0.745357
0.42	0.703662	0.709743	0.715824	0.721903	0.727979	0.734048	0.740109	0.746160	0.752200	0.758228
0.43	0.716290	0.722391	0.728498	0.734605	0.740712	0.746816	0.752915	0.759006	0.765089	0.771161
0.44	0.729014	0.735133	0.741261	0.747494	0.753529	0.759665	0.765798	0.771926	0.778049	0.784164
0.45	0.741843	0.747976	0.754121	0.760276	0.766437	0.772601	0.778766	0.784930	0.791090	0.797244
0.46	0.754785	0.760928	0.767088	0.773261	0.779444	0.785634	0.791828	0.798023	0.804218	0.810410
0.47	0.767848	0.773997	0.780168	0.786357	0.792559	0.798772	0.804992	0.811216	0.817443	0.823670
0.48	0.781041	0.787193	0.793372	0.799572	0.805790	0.812022	0.818265	0.824516	0.830772	0.837031
0.49	0.794373	0.800524	0.806707	0.812915	0.819145	0.825394	0.831657	0.837931	0.844214	0.850503
0.50	0.807853	0.813999	0.820182	0.826495	0.832635	0.838896	0.845176	0.851471	0.857778	0.864094

K = K(V,c) where probability P = V(K,c)

V \ c	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49
0.50	0.807853	0.813999	0.820182	0.826395	0.832635	0.838896	0.845176	0.851471	0.857778	0.864094
0.51	0.821490	0.827628	0.833807	0.840021	0.846267	0.852538	0.858832	0.865144	0.871473	0.877813
0.52	0.835295	0.841420	0.847592	0.853804	0.860051	0.866329	0.872634	0.878961	0.885307	0.891670
0.53	0.849277	0.855386	0.861546	0.867752	0.873998	0.880280	0.886592	0.892930	0.899292	0.905673
0.54	0.863447	0.869536	0.875681	0.881877	0.888118	0.894399	0.900716	0.907063	0.913437	0.919834
0.55	0.877816	0.883880	0.890007	0.896189	0.902422	0.908699	0.915016	0.921369	0.927752	0.934162
0.56	0.892396	0.898432	0.904535	0.910700	0.916921	0.923191	0.929505	0.935859	0.942249	0.948670
0.57	0.907198	0.913201	0.919278	0.925422	0.931627	0.937886	0.944194	0.950547	0.956939	0.963367
0.58	0.922236	0.928203	0.934249	0.940368	0.946552	0.952797	0.959096	0.965443	0.971835	0.978267
0.59	0.937522	0.943448	0.949460	0.955550	0.961711	0.967937	0.974222	0.980562	0.986950	0.993382
0.60	0.953072	0.958953	0.964926	0.970982	0.977116	0.983320	0.989589	0.995916	1.002297	1.008727
0.61	0.968899	0.974731	0.980661	0.986681	0.992783	0.998961	1.005209	1.011521	1.017891	1.024315
0.62	0.985019	0.990799	0.996683	1.002661	1.008728	1.014676	1.021099	1.027391	1.033747	1.040162
0.63	1.001451	1.007174	1.013006	1.018939	1.024967	1.031081	1.037276	1.043545	1.049883	1.056284
0.64	1.018210	1.023873	1.029650	1.035534	1.041518	1.047594	1.053756	1.059999	1.066315	1.072699
0.65	1.035318	1.040916	1.046634	1.052465	1.058401	1.064435	1.070561	1.076772	1.083062	1.089426
0.66	1.052794	1.058324	1.063979	1.069752	1.075636	1.081624	1.087709	1.093885	1.100146	1.106485
0.67	1.070660	1.076118	1.081706	1.087418	1.093246	1.099184	1.105224	1.111361	1.117588	1.123899
0.68	1.088941	1.094323	1.099840	1.105486	1.111254	1.117137	1.123129	1.129222	1.135411	1.141690
0.69	1.107662	1.112964	1.118407	1.123984	1.129688	1.135512	1.141450	1.147495	1.153642	1.159884
0.70	1.126851	1.132071	1.137435	1.142938	1.148574	1.154335	1.160215	1.166209	1.172309	1.178510
0.71	1.146538	1.151672	1.156955	1.162381	1.167944	1.173638	1.179456	1.185393	1.191442	1.197597
0.72	1.166758	1.171803	1.177000	1.182345	1.187831	1.193454	1.199206	1.205081	1.211075	1.217180
0.73	1.187547	1.192499	1.197608	1.202868	1.208274	1.213820	1.219501	1.225311	1.231245	1.237295
0.74	1.208944	1.213802	1.218818	1.223990	1.229311	1.234778	1.240389	1.246124	1.251992	1.257983
0.75	1.230995	1.235755	1.240677	1.245756	1.250989	1.256372	1.261898	1.267563	1.273362	1.279289
0.76	1.253749	1.258410	1.263234	1.268218	1.273359	1.278652	1.284095	1.289681	1.295405	1.301263
0.77	1.277262	1.281821	1.286544	1.291430	1.296475	1.301676	1.307030	1.312532	1.318177	1.323960
0.78	1.301595	1.306050	1.310671	1.315455	1.320401	1.325506	1.330767	1.336180	1.341741	1.347445
0.79	1.326820	1.331170	1.335685	1.340365	1.345208	1.350213	1.355377	1.360697	1.366168	1.371787
0.80	1.353016	1.357259	1.361666	1.366240	1.370978	1.375879	1.380941	1.386163	1.391540	1.397069
0.81	1.380274	1.384409	1.388708	1.393172	1.397801	1.402595	1.407552	1.412671	1.417948	1.423382
0.82	1.408700	1.412726	1.416915	1.421268	1.425785	1.430468	1.435316	1.440328	1.445501	1.450834
0.83	1.438417	1.442334	1.446411	1.450650	1.455054	1.459623	1.464357	1.469257	1.474321	1.479548
0.84	1.469569	1.473376	1.477340	1.481464	1.485752	1.490204	1.494821	1.499605	1.504554	1.509669
0.85	1.502325	1.506022	1.509873	1.513881	1.518050	1.522382	1.526879	1.531542	1.536372	1.541369
0.86	1.536891	1.540478	1.544214	1.548105	1.552153	1.556362	1.560735	1.565274	1.569980	1.574854
0.87	1.573514	1.576991	1.580612	1.584384	1.588310	1.592394	1.596640	1.601 50	1.605627	1.610372
0.88	1.612499	1.615865	1.619371	1.623023	1.626825	1.630782	1.634898	1.639175	1.643618	1.648229
0.89	1.654227	1.657492	1.660873	1.664404	1.668081	1.671908	1.675890	1.680031	1.684335	1.688806
0.90	1.699183	1.702328	1.705602	1.709012	1.712561	1.716257	1.720102	1.724103	1.728264	1.732589
0.91	1.748001	1.751035	1.754192	1.757479	1.760900	1.764461	1.768167	1.772024	1.776037	1.780209
0.92	1.801530	1.804452	1.807491	1.810653	1.813943	1.817368	1.820932	1.824641	1.828500	1.832514
0.93	1.860946	1.863754	1.866673	1.869708	1.872866	1.876151	1.879568	1.883124	1.886825	1.890675
0.94	1.927950	1.930640	1.933436	1.936342	1.939363	1.942504	1.945771	1.949169	1.952704	1.956383
0.95	2.005137	2.007706	2.010374	2.013146	2.016025	2.019017	2.022127	2.025360	2.028722	2.032220
0.96	2.096786	2.099226	2.101759	2.104388	2.107117	2.109951	2.112896	2.115954	2.119133	2.122439
0.97	2.210751	2.213049	2.215433	2.217906	2.220473	2.223136	2.225900	2.228769	2.231749	2.234844
0.98	2.364208	2.366342	2.368554	2.370848	2.373226	2.375692	2.378250	2.380902	2.383654	2.386510
0.99	2.609951	2.611867	2.613854	2.615912	2.618045	2.620254	2.622544	2.624916	2.627375	2.629924

K = K(V,c) where probability P = V(K,c)

V\c	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59
0.01	0.100314	0.101309	0.102294	0.103269	0.104236	0.105193	0.106142	0.107083	0.108015	0.108940
0.02	0.142316	0.143722	0.145114	0.146492	0.147859	0.149213	0.150554	0.151884	0.153203	0.154511
0.03	0.174859	0.176579	0.178283	0.179971	0.181644	0.183301	0.184944	0.186573	0.188188	0.189789
0.04	0.202562	0.204547	0.206513	0.208461	0.210392	0.212305	0.214202	0.216082	0.217947	0.219796
0.05	0.227210	0.229427	0.231624	0.233801	0.235959	0.238097	0.240217	0.242319	0.244404	0.246471
0.06	0.249715	0.252143	0.254548	0.256931	0.259293	0.261635	0.263956	0.266259	0.268542	0.270807
0.07	0.270619	0.273239	0.275835	0.278408	0.280958	0.283486	0.285993	0.288479	0.290945	0.293391
0.08	0.290275	0.293073	0.295846	0.298595	0.301320	0.304021	0.306700	0.309358	0.311993	0.314608
0.09	0.308926	0.311892	0.314831	0.317744	0.320632	0.323497	0.326337	0.329154	0.331949	0.334722
0.10	0.326751	0.329874	0.332969	0.336038	0.339081	0.342098	0.345091	0.348060	0.351006	0.353928
0.11	0.343883	0.347155	0.350399	0.353615	0.356804	0.359968	0.363105	0.366218	0.369307	0.372372
0.12	0.360428	0.363842	0.367227	0.370583	0.373912	0.377214	0.380490	0.383740	0.386965	0.390165
0.13	0.376467	0.380017	0.383537	0.387027	0.390490	0.393924	0.397332	0.400714	0.404070	0.407400
0.14	0.392070	0.395749	0.399398	0.403018	0.406608	0.410170	0.413705	0.417212	0.420694	0.424150
0.15	0.407291	0.411095	0.414868	0.418611	0.422325	0.426009	0.429666	0.433295	0.436897	0.440474
0.16	0.422177	0.426102	0.429994	0.433856	0.437688	0.441491	0.445265	0.449012	0.452731	0.456424
0.17	0.436769	0.440809	0.444817	0.448794	0.452740	0.456657	0.460545	0.464405	0.468237	0.472043
0.18	0.451101	0.455252	0.459371	0.463459	0.467517	0.471544	0.475542	0.479512	0.483453	0.487368
0.19	0.465202	0.469461	0.473688	0.477883	0.482047	0.486182	0.490287	0.494363	0.498410	0.502431
0.20	0.479098	0.483461	0.487793	0.492092	0.496360	0.500598	0.504807	0.508986	0.513137	0.517260
0.21	0.492813	0.497277	0.501709	0.506110	0.510479	0.514818	0.519126	0.523406	0.527657	0.531881
0.22	0.506367	0.510929	0.515459	0.519958	0.524425	0.528861	0.533268	0.537645	0.541994	0.546315
0.23	0.519779	0.524436	0.529061	0.533655	0.538217	0.542748	0.547250	0.551723	0.556167	0.560583
0.24	0.533066	0.537815	0.542532	0.547218	0.551872	0.556497	0.561091	0.565657	0.570193	0.574702
0.25	0.546242	0.551081	0.555888	0.560663	0.565408	0.570122	0.574807	0.579463	0.584090	0.588689
0.26	0.559323	0.564248	0.569142	0.574005	0.578837	0.583639	0.588412	0.593156	0.597871	0.602559
0.27	0.572321	0.577330	0.582309	0.587256	0.592174	0.597061	0.601920	0.606750	0.611552	0.616326
0.28	0.585248	0.590339	0.595400	0.600430	0.605430	0.610401	0.615344	0.620257	0.625144	0.630002
0.29	0.598115	0.603286	0.608426	0.613537	0.618618	0.623670	0.628694	0.633690	0.638659	0.643600
0.30	0.610934	0.616181	0.621399	0.626588	0.631748	0.636880	0.641983	0.647059	0.652108	0.657130
0.31	0.623714	0.629036	0.634329	0.639594	0.644831	0.650040	0.655221	0.660375	0.665503	0.670604
0.32	0.636464	0.641859	0.647226	0.652565	0.657876	0.663160	0.668417	0.673648	0.678852	0.684031
0.33	0.649195	0.654660	0.660098	0.665508	0.670892	0.676250	0.681581	0.686887	0.692166	0.697420
0.34	0.661914	0.667447	0.672954	0.678435	0.683889	0.689319	0.694723	0.700100	0.705454	0.710782
0.35	0.674631	0.680230	0.685803	0.691352	0.696876	0.702374	0.707848	0.713298	0.718723	0.724124
0.36	0.687353	0.693015	0.698654	0.704269	0.709859	0.715426	0.720969	0.726488	0.731983	0.737455
0.37	0.700089	0.705813	0.711514	0.717193	0.722848	0.728481	0.734091	0.739678	0.745242	0.750784
0.38	0.712846	0.718629	0.724391	0.730132	0.735851	0.741548	0.747223	0.752876	0.758508	0.764117
0.39	0.725632	0.731473	0.737294	0.743095	0.748875	0.754634	0.760373	0.766091	0.771788	0.777464
0.40	0.738455	0.744351	0.750229	0.756088	0.761928	0.767748	0.773549	0.779330	0.785091	0.790832
0.41	0.751323	0.757272	0.763204	0.769120	0.775017	0.780896	0.786757	0.792600	0.798423	0.804228
0.42	0.764243	0.770243	0.776228	0.782197	0.788151	0.794087	0.800007	0.805909	0.811794	0.817661
0.43	0.777222	0.783271	0.789307	0.795329	0.801336	0.807328	0.813305	0.819265	0.825209	0.831137
0.44	0.790270	0.796365	0.802450	0.808522	0.814581	0.820627	0.826659	0.832676	0.838678	0.844665
0.45	0.803392	0.809532	0.815663	0.821784	0.827893	0.833991	0.840076	0.846148	0.852207	0.858251
0.46	0.816598	0.822780	0.828955	0.835122	0.841280	0.847428	0.853565	0.859691	0.865804	0.871905
0.47	0.829895	0.836117	0.842335	0.848546	0.854750	0.860946	0.867133	0.873311	0.879478	0.885633
0.48	0.843292	0.849552	0.855809	0.862063	0.868311	0.874554	0.880789	0.887017	0.893235	0.899444
0.49	0.856796	0.863091	0.869387	0.875681	0.881972	0.888259	0.894541	0.900816	0.907085	0.913346
0.50	0.870417	0.876745	0.883076	0.889408	0.895740	0.902069	0.908396	0.914718	0.921036	0.927347

K = K(V,c) where probability P = V(K,c)

V\c	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59
0.50	0.870417	0.876745	0.883076	0.889408	0.895740	0.902069	0.908396	0.914718	0.921036	0.927347
0.51	0.884164	0.890523	0.896887	0.903255	0.909624	0.915995	0.922364	0.928732	0.935096	0.941456
0.52	0.898046	0.904432	0.910827	0.917229	0.923635	0.930044	0.936454	0.942865	0.949274	0.955681
0.53	0.912071	0.918483	0.924907	0.931340	0.937780	0.944226	0.950675	0.957127	0.963580	0.970033
0.54	0.926252	0.932687	0.939136	0.945598	0.952070	0.958551	0.965037	0.971529	0.978023	0.984520
0.55	0.940597	0.947052	0.953525	0.960014	0.966516	0.973028	0.979550	0.986079	0.992614	0.999153
0.56	0.955118	0.961591	0.968085	0.974598	0.981127	0.987670	0.994225	1.000789	1.007362	1.013942
0.57	0.969827	0.976314	0.982827	0.989361	0.995915	1.002486	1.009072	1.015670	1.022279	1.028897
0.58	0.984734	0.991234	0.997762	1.004316	1.010892	1.017489	1.024103	1.030733	1.037377	1.044032
0.59	0.999855	1.006363	1.012904	1.019474	1.026071	1.032691	1.039331	1.045991	1.052667	1.059357
0.60	1.015201	1.021715	1.028266	1.034850	1.041464	1.048105	1.054769	1.061456	1.068162	1.074885
0.61	1.030787	1.037305	1.043863	1.050457	1.057086	1.063745	1.070431	1.077143	1.083877	1.090631
0.62	1.046629	1.053146	1.059708	1.066311	1.072951	1.079626	1.086331	1.093065	1.099825	1.106609
0.63	1.062743	1.069257	1.075819	1.082427	1.089076	1.095763	1.102486	1.109240	1.116023	1.122834
0.64	1.079147	1.085653	1.092213	1.098822	1.105477	1.112175	1.118911	1.125683	1.132487	1.139322
0.65	1.095858	1.102354	1.108908	1.115516	1.122174	1.128878	1.135625	1.142412	1.149235	1.156092
0.66	1.112898	1.119379	1.125924	1.132527	1.139185	1.145893	1.152649	1.159448	1.166287	1.173163
0.67	1.130288	1.136751	1.143282	1.149877	1.156532	1.163241	1.170001	1.176810	1.183662	1.190556
0.68	1.148052	1.154493	1.161007	1.167590	1.174237	1.180944	1.187707	1.194521	1.201384	1.208292
0.69	1.166215	1.172630	1.179124	1.185691	1.192327	1.199028	1.205789	1.212606	1.219477	1.226397
0.70	1.184805	1.191190	1.197659	1.204206	1.210828	1.217519	1.224275	1.231093	1.237967	1.244896
0.71	1.203853	1.210203	1.216643	1.223167	1.229770	1.236448	1.243195	1.250009	1.256885	1.263819
0.72	1.223391	1.229703	1.236109	1.242605	1.249186	1.255846	1.262581	1.269388	1.276261	1.283197
0.73	1.243457	1.249725	1.256094	1.262557	1.269111	1.275750	1.282469	1.289264	1.296131	1.303065
0.74	1.264092	1.270311	1.276637	1.283064	1.289586	1.296198	1.302897	1.309677	1.316533	1.323463
0.75	1.285338	1.291505	1.297783	1.304168	1.310654	1.317236	1.323910	1.330670	1.337512	1.344433
0.76	1.307248	1.313357	1.319582	1.325920	1.332365	1.338912	1.345556	1.352292	1.359116	1.366023
0.77	1.329877	1.335922	1.342090	1.348376	1.354774	1.361280	1.367889	1.374597	1.381397	1.388287
0.78	1.353287	1.359263	1.365368	1.371596	1.377943	1.384403	1.390972	1.397645	1.404418	1.411285
0.79	1.377550	1.383451	1.389487	1.395652	1.401942	1.408350	1.414874	1.421508	1.428247	1.435087
0.80	1.402746	1.408568	1.414528	1.420624	1.426850	1.433202	1.439674	1.446262	1.452962	1.459769
0.81	1.428968	1.434704	1.440583	1.446604	1.452760	1.459048	1.465463	1.472000	1.478654	1.485422
0.82	1.456323	1.461966	1.467758	1.473697	1.479777	1.485994	1.492345	1.498824	1.505427	1.512150
0.83	1.484934	1.490478	1.496177	1.502026	1.508023	1.514163	1.520442	1.526856	1.533401	1.540071
0.84	1.514946	1.520385	1.525983	1.531737	1.537643	1.543698	1.549898	1.556239	1.562718	1.569329
0.85	1.546532	1.551859	1.557349	1.562999	1.568807	1.574769	1.580882	1.587142	1.593546	1.600090
0.86	1.579895	1.585104	1.590478	1.596017	1.601718	1.607579	1.613596	1.619767	1.626088	1.632556
0.87	1.615286	1.620369	1.625620	1.631040	1.636625	1.642376	1.648288	1.654360	1.660588	1.666969
0.88	1.653008	1.657958	1.663079	1.668370	1.673831	1.679462	1.685259	1.691221	1.697346	1.703630
0.89	1.693445	1.698254	1.703235	1.708390	1.713717	1.719216	1.724887	1.730728	1.736738	1.742914
0.90	1.737080	1.741741	1.746575	1.751582	1.756764	1.762122	1.767655	1.773362	1.779244	1.785298
0.91	1.784546	1.789051	1.793727	1.798578	1.803604	1.808807	1.814189	1.819750	1.825489	1.831406
0.92	1.836690	1.841030	1.845539	1.850221	1.855079	1.860115	1.865331	1.870729	1.876310	1.882073
0.93	1.894680	1.898847	1.903178	1.907680	1.912356	1.917210	1.922244	1.927462	1.932866	1.938456
0.94	1.960210	1.964192	1.968334	1.972642	1.977122	1.981776	1.986610	1.991628	1.996833	2.002227
0.95	2.035859	2.039645	2.043584	2.047684	2.051948	2.056384	2.060997	2.065791	2.070771	2.075941
0.96	2.125876	2.129451	2.133171	2.137043	2.141072	2.145265	2.149629	2.154170	2.158894	2.163806
0.97	2.238061	2.241405	2.244883	2.248501	2.252267	2.256187	2.260268	2.264518	2.268943	2.273551
0.98	2.389475	2.392554	2.395754	2.399080	2.402540	2.406139	2.409886	2.413788	2.417853	2.422088
0.99	2.632567	2.635308	2.638152	2.641104	2.644170	2.647356	2.650668	2.654114	2.657701	2.661438

K = K(V,c) where probability P = V(K,c)

V \ c	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69
0.01	0.109857	0.110766	0.111668	0.112563	0.113450	0.114331	0.115205	0.116073	0.116934	0.117789
0.02	0.155807	0.157094	0.158369	0.159635	0.160891	0.162137	0.163374	0.164602	0.165821	0.167031
0.03	0.191378	0.192953	0.194516	0.196067	0.197606	0.199133	0.200649	0.202153	0.203647	0.205130
0.04	0.221630	0.223450	0.225255	0.227046	0.228824	0.230588	0.232339	0.234078	0.235804	0.237517
0.05	0.248522	0.250556	0.252575	0.254578	0.256566	0.258540	0.260499	0.262443	0.264374	0.266292
0.06	0.273053	0.275282	0.277494	0.279689	0.281868	0.284030	0.286177	0.288309	0.290426	0.292528
0.07	0.295818	0.298226	0.300615	0.302987	0.305341	0.307678	0.309998	0.312302	0.314589	0.316862
0.08	0.317202	0.319776	0.322331	0.324867	0.327385	0.329884	0.332366	0.334830	0.337277	0.339708
0.09	0.337474	0.340205	0.342915	0.345606	0.348277	0.350929	0.353562	0.356178	0.358775	0.361355
0.10	0.356829	0.359707	0.362565	0.365402	0.368218	0.371015	0.373792	0.376550	0.379290	0.382012
0.11	0.375413	0.378433	0.381430	0.384406	0.387361	0.390295	0.393209	0.396104	0.398979	0.401836
0.12	0.393342	0.396496	0.399627	0.402736	0.405823	0.408889	0.411934	0.414959	0.417964	0.420950
0.13	0.410707	0.413989	0.417248	0.420485	0.423699	0.426891	0.430062	0.433212	0.436342	0.439452
0.14	0.427580	0.430987	0.434369	0.437729	0.441065	0.444379	0.447671	0.450942	0.454192	0.457421
0.15	0.444025	0.447550	0.451052	0.454530	0.457984	0.461416	0.464825	0.468212	0.471578	0.474923
0.16	0.460090	0.463732	0.467348	0.470941	0.474509	0.478054	0.481577	0.485077	0.488556	0.492013
0.17	0.475822	0.479575	0.483303	0.487006	0.490685	0.494341	0.497973	0.501583	0.505171	0.508737
0.18	0.491255	0.495117	0.498953	0.502764	0.506551	0.510314	0.514053	0.517769	0.521463	0.525135
0.19	0.506424	0.510391	0.514332	0.518248	0.522139	0.526006	0.529850	0.533670	0.537467	0.541243
0.20	0.521356	0.525426	0.529469	0.533487	0.537480	0.541449	0.545394	0.549315	0.553213	0.557089
0.21	0.536077	0.540246	0.544389	0.548507	0.552599	0.556667	0.560711	0.564731	0.568728	0.572702
0.22	0.550609	0.554875	0.559116	0.563330	0.567520	0.571684	0.575824	0.579941	0.584034	0.588105
0.23	0.564971	0.569333	0.573668	0.577978	0.582262	0.586521	0.590756	0.594967	0.599154	0.603319
0.24	0.579183	0.583638	0.588066	0.592468	0.596844	0.601196	0.605524	0.609827	0.614107	0.618364
0.25	0.593261	0.597806	0.602325	0.606817	0.611285	0.615727	0.620145	0.624539	0.628910	0.633258
0.26	0.607220	0.611853	0.616461	0.621042	0.625598	0.630130	0.634637	0.639120	0.643579	0.648015
0.27	0.621073	0.625793	0.630487	0.635156	0.639799	0.644418	0.649012	0.653582	0.658129	0.662652
0.28	0.634834	0.639639	0.644418	0.649172	0.653901	0.658604	0.663284	0.667940	0.672573	0.677182
0.29	0.648514	0.653403	0.658265	0.663103	0.667915	0.672703	0.677467	0.682207	0.686924	0.691618
0.30	0.662126	0.667096	0.672040	0.676959	0.681854	0.686724	0.691570	0.696393	0.701193	0.705970
0.31	0.675679	0.680729	0.685753	0.690753	0.695728	0.700679	0.705607	0.710511	0.715392	0.720251
0.32	0.689184	0.694312	0.699415	0.704493	0.709548	0.714579	0.719586	0.724570	0.729532	0.734471
0.33	0.702650	0.707854	0.713034	0.718190	0.723323	0.728432	0.733518	0.738581	0.743622	0.748641
0.34	0.716086	0.721366	0.726621	0.731854	0.737062	0.742248	0.747412	0.752552	0.757671	0.762768
0.35	0.729501	0.734855	0.740185	0.745492	0.750776	0.756037	0.761277	0.766494	0.771690	0.776864
0.36	0.742904	0.748330	0.753733	0.759113	0.764471	0.769807	0.775121	0.780414	0.785685	0.790936
0.37	0.756303	0.761799	0.767274	0.772726	0.778157	0.783566	0.788954	0.794321	0.799667	0.804993
0.38	0.769705	0.775271	0.780816	0.786339	0.791842	0.797323	0.802784	0.808224	0.813644	0.819043
0.39	0.783119	0.788754	0.794367	0.799960	0.805533	0.811085	0.816618	0.822130	0.827622	0.833095
0.40	0.796553	0.802254	0.807936	0.813597	0.819239	0.824861	0.830464	0.836047	0.841611	0.847156
0.41	0.810014	0.815781	0.821528	0.827257	0.832967	0.838658	0.844330	0.849983	0.855618	0.861235
0.42	0.823510	0.829340	0.835153	0.840948	0.846725	0.852483	0.858224	0.863946	0.869651	0.875338
0.43	0.837048	0.842941	0.848818	0.854678	0.860520	0.866345	0.872153	0.877944	0.883718	0.889474
0.44	0.850636	0.856591	0.862531	0.868454	0.874361	0.880251	0.886126	0.891984	0.897825	0.903651
0.45	0.864282	0.870297	0.876298	0.882284	0.888254	0.894209	0.900149	0.906073	0.911982	0.917875
0.46	0.877993	0.884067	0.890128	0.896175	0.902208	0.908227	0.914231	0.920220	0.926196	0.932156
0.47	0.891777	0.897910	0.904029	0.910136	0.916231	0.922312	0.928379	0.934433	0.940474	0.946500
0.48	0.905643	0.911832	0.918009	0.924175	0.930329	0.936472	0.942602	0.948719	0.954824	0.960916
0.49	0.919598	0.925842	0.932076	0.938299	0.944513	0.950715	0.956907	0.963087	0.969256	0.975412
0.50	0.933651	0.939948	0.946237	0.952518	0.958789	0.965051	0.971303	0.977544	0.983776	0.989997

K = K(V,c) where probability P = V(K,c)

V\c	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69
0.50	0.933651	0.939948	0.946237	0.952518	0.958789	0.965051	0.971303	0.977544	0.983776	0.989997
0.51	0.947811	0.954160	0.960503	0.966838	0.973166	0.979486	0.985798	0.992100	0.998394	1.004678
0.52	0.962085	0.968485	0.974881	0.981271	0.987654	0.994031	1.000401	1.006764	1.013118	1.019464
0.53	0.976485	0.982934	0.989380	0.995823	1.002261	1.008694	1.015122	1.021543	1.027958	1.034365
0.54	0.991018	0.997515	1.004011	1.010506	1.016997	1.023485	1.029969	1.036448	1.042922	1.049390
0.55	1.005695	1.012239	1.018783	1.025328	1.031872	1.038413	1.044952	1.051489	1.058021	1.064549
0.56	1.020527	1.027115	1.033707	1.040301	1.046895	1.053489	1.060083	1.066675	1.073265	1.079852
0.57	1.035523	1.042156	1.048793	1.055434	1.062078	1.068724	1.075370	1.082018	1.088664	1.095310
0.58	1.050697	1.057371	1.064052	1.070740	1.077432	1.084128	1.090827	1.097528	1.104230	1.110933
0.59	1.066060	1.072774	1.079498	1.086230	1.092969	1.099714	1.106464	1.113218	1.119975	1.126734
0.60	1.081624	1.088377	1.095141	1.101917	1.108702	1.115494	1.122294	1.129100	1.135911	1.142726
0.61	1.097404	1.104193	1.110997	1.117814	1.124643	1.131482	1.138331	1.145187	1.152051	1.158920
0.62	1.113413	1.120237	1.127079	1.133936	1.140808	1.147692	1.154588	1.161494	1.168409	1.175332
0.63	1.129668	1.136525	1.143402	1.150298	1.157211	1.164139	1.171080	1.178035	1.185001	1.191977
0.64	1.146185	1.153072	1.159984	1.166916	1.173868	1.180838	1.187825	1.194826	1.201842	1.208869
0.65	1.162980	1.169897	1.176840	1.183808	1.190798	1.197808	1.204838	1.211885	1.218949	1.226028
0.66	1.180075	1.187018	1.193991	1.200992	1.208018	1.215067	1.222139	1.229231	1.236342	1.243470
0.67	1.197488	1.204456	1.211457	1.218488	1.225549	1.232636	1.239748	1.246882	1.254039	1.261215
0.68	1.215243	1.222232	1.229259	1.236320	1.243412	1.250535	1.257685	1.264862	1.272063	1.279286
0.69	1.233363	1.240372	1.247422	1.254509	1.261632	1.268789	1.275976	1.283192	1.290436	1.297706
0.70	1.251875	1.258901	1.265971	1.273083	1.280235	1.287422	1.294645	1.301900	1.309185	1.316499
0.71	1.270807	1.277847	1.284936	1.292070	1.299247	1.306465	1.313720	1.321012	1.328337	1.335694
0.72	1.290192	1.297243	1.304347	1.311501	1.318702	1.325947	1.333233	1.340559	1.347923	1.355321
0.73	1.310064	1.317123	1.324240	1.331410	1.338632	1.345902	1.353217	1.360576	1.367976	1.375414
0.74	1.330462	1.337526	1.344651	1.351836	1.359075	1.366368	1.373710	1.381099	1.388533	1.396010
0.75	1.351428	1.358493	1.365624	1.372819	1.380074	1.387386	1.394752	1.402170	1.409636	1.417149
0.76	1.373010	1.380072	1.387206	1.394408	1.401675	1.409004	1.416392	1.423835	1.431331	1.438878
0.77	1.395262	1.402317	1.409450	1.416656	1.423931	1.431274	1.438679	1.446146	1.453670	1.461249
0.78	1.418243	1.425288	1.432415	1.439620	1.446901	1.454254	1.461675	1.469161	1.476710	1.484318
0.79	1.442023	1.449052	1.456169	1.463370	1.470652	1.478011	1.485443	1.492946	1.500517	1.508152
0.80	1.466679	1.473686	1.480788	1.487981	1.495259	1.502620	1.510061	1.517578	1.525167	1.532826
0.81	1.492299	1.499781	1.506363	1.513541	1.520811	1.528171	1.535615	1.543141	1.550745	1.558425
0.82	1.518988	1.525937	1.532993	1.540152	1.547409	1.554761	1.562205	1.569736	1.577352	1.585049
0.83	1.546864	1.553775	1.560798	1.567932	1.575170	1.582510	1.589948	1.597480	1.605103	1.612812
0.84	1.576069	1.582934	1.589919	1.597020	1.604233	1.611555	1.618982	1.626509	1.634133	1.641851
0.85	1.606770	1.613581	1.620519	1.627581	1.634762	1.642059	1.649468	1.656984	1.664605	1.672326
0.86	1.639166	1.645914	1.652798	1.659812	1.666954	1.674218	1.681602	1.689101	1.696712	1.704431
0.87	1.673500	1.680177	1.686996	1.693954	1.701047	1.708271	1.715621	1.723095	1.730689	1.738399
0.88	1.710071	1.716666	1.723410	1.730302	1.737336	1.744509	1.751817	1.759258	1.766826	1.774519
0.89	1.749253	1.755753	1.762412	1.769224	1.776188	1.783300	1.790556	1.797952	1.805486	1.813152
0.90	1.791522	1.797915	1.804473	1.811194	1.818074	1.825112	1.832302	1.839643	1.847130	1.854760
0.91	1.837500	1.843769	1.850212	1.856825	1.863607	1.870555	1.877666	1.884937	1.892364	1.899944
0.92	1.888019	1.894147	1.900456	1.906944	1.913609	1.920450	1.927464	1.934647	1.941998	1.949513
0.93	1.944234	1.950199	1.956353	1.962694	1.969221	1.975932	1.982827	1.989903	1.997157	2.004587
0.94	2.007812	2.013591	2.019563	2.025730	2.032092	2.038648	2.045397	2.052338	2.059469	2.066789
0.95	2.081304	2.086865	2.092624	2.098584	2.104747	2.111112	2.117681	2.124453	2.131428	2.138604
0.96	2.168911	2.174213	2.179718	2.185428	2.191346	2.197476	2.203818	2.210375	2.217146	2.224133
0.97	2.278347	2.283339	2.288532	2.293932	2.299545	2.305373	2.311422	2.317695	2.324195	2.330923
0.98	2.426503	2.431104	2.435900	2.440899	2.446108	2.451533	2.457183	2.463063	2.469179	2.475535
0.99	2.665332	2.669394	2.673631	2.678054	2.682673	2.687498	2.692539	2.697805	2.703306	2.709053

K = K(V,c) where probability P = V(K,c)

V \ c	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79
0.01	0.118638	0.119481	0.120318	0.121149	0.121975	0.122795	0.123610	0.124419	0.125224	0.126023
0.02	0.168232	0.169426	0.170610	0.171787	0.172956	0.174117	0.175271	0.176417	0.177556	0.178688
0.03	0.206603	0.208065	0.209518	0.210960	0.212394	0.213817	0.215232	0.216637	0.218034	0.219422
0.04	0.239219	0.240910	0.242588	0.244256	0.245912	0.247558	0.249194	0.250819	0.252433	0.254038
0.05	0.268196	0.270088	0.271966	0.273832	0.275687	0.277529	0.279359	0.281178	0.282986	0.284783
0.06	0.294615	0.296689	0.298749	0.300795	0.302829	0.304849	0.306857	0.308852	0.310835	0.312806
0.07	0.319118	0.321360	0.323587	0.325800	0.327998	0.330183	0.332354	0.334512	0.336657	0.338789
0.08	0.342123	0.344521	0.346904	0.349272	0.351625	0.353963	0.356287	0.358597	0.360893	0.363175
0.09	0.363918	0.366464	0.368994	0.371508	0.374007	0.376490	0.378958	0.381411	0.383849	0.386274
0.10	0.384715	0.387402	0.390071	0.392724	0.395360	0.397980	0.400585	0.403174	0.405748	0.408307
0.11	0.404674	0.407494	0.410296	0.413081	0.415849	0.418600	0.421335	0.424054	0.426758	0.429445
0.12	0.423916	0.426864	0.429794	0.432706	0.435600	0.438477	0.441337	0.444181	0.447008	0.449820
0.13	0.442542	0.445613	0.448665	0.451699	0.454715	0.457713	0.460693	0.463657	0.466604	0.469534
0.14	0.460631	0.463820	0.466991	0.470142	0.473275	0.476390	0.479487	0.482566	0.485629	0.488674
0.15	0.478248	0.481552	0.484837	0.488103	0.491349	0.494577	0.497787	0.500979	0.504153	0.507310
0.16	0.495449	0.498865	0.502261	0.505637	0.508994	0.512331	0.515650	0.518951	0.522234	0.525500
0.17	0.512282	0.515806	0.519309	0.522793	0.526257	0.529701	0.533127	0.536534	0.539923	0.543294
0.18	0.528786	0.532415	0.536023	0.539612	0.543180	0.546728	0.550258	0.553768	0.557261	0.560734
0.19	0.544996	0.548728	0.552439	0.556129	0.559799	0.563449	0.567080	0.570692	0.574285	0.577859
0.20	0.560943	0.564775	0.568586	0.572376	0.576145	0.579895	0.583625	0.587335	0.591027	0.594700
0.21	0.576654	0.580584	0.584493	0.588380	0.592247	0.596094	0.599921	0.603728	0.607516	0.611286
0.22	0.592153	0.596179	0.600183	0.604166	0.608129	0.612071	0.615993	0.619895	0.623778	0.627642
0.23	0.607461	0.611581	0.615679	0.619756	0.623812	0.627848	0.631863	0.635859	0.639835	0.643792
0.24	0.622598	0.626811	0.631001	0.635170	0.639318	0.643445	0.647552	0.651639	0.655707	0.659755
0.25	0.637582	0.641885	0.646166	0.650425	0.654663	0.658881	0.663078	0.667255	0.671413	0.675551
0.26	0.652429	0.656821	0.661190	0.665538	0.669865	0.674172	0.678458	0.682724	0.686970	0.691197
0.27	0.667153	0.671632	0.676089	0.680525	0.684939	0.689333	0.693706	0.698060	0.702393	0.706708
0.28	0.681769	0.686334	0.690877	0.695399	0.699899	0.704379	0.708838	0.713278	0.717698	0.722098
0.29	0.696289	0.700938	0.705566	0.710173	0.714758	0.719323	0.723867	0.728392	0.732897	0.737382
0.30	0.710725	0.715458	0.720169	0.724859	0.729528	0.734176	0.738805	0.743413	0.748002	0.752572
0.31	0.725088	0.729903	0.734696	0.739469	0.744220	0.748952	0.753663	0.758354	0.763026	0.767679
0.32	0.739389	0.744285	0.749160	0.754013	0.758846	0.763659	0.768452	0.773226	0.777980	0.782715
0.33	0.753638	0.758614	0.763568	0.768502	0.773416	0.778310	0.783184	0.788038	0.792873	0.797690
0.34	0.767844	0.772899	0.777933	0.782946	0.787939	0.792913	0.797867	0.802801	0.807717	0.812614
0.35	0.782017	0.787150	0.792262	0.797353	0.802425	0.807478	0.812511	0.817525	0.822520	0.827497
0.36	0.796166	0.801375	0.806564	0.811734	0.816883	0.822014	0.827125	0.832218	0.837292	0.842348
0.37	0.810298	0.815584	0.820849	0.826095	0.831322	0.836529	0.841718	0.846889	0.852041	0.857176
0.38	0.824423	0.829784	0.835124	0.840446	0.845749	0.851033	0.856299	0.861547	0.866777	0.871989
0.39	0.838549	0.843983	0.849399	0.854795	0.860174	0.865534	0.870876	0.876200	0.881507	0.886797
0.40	0.852683	0.858190	0.863680	0.869151	0.874604	0.880039	0.885457	0.890857	0.896240	0.901606
0.41	0.866833	0.872413	0.877976	0.883520	0.889047	0.894557	0.900050	0.905525	0.910984	0.916427
0.42	0.881008	0.886660	0.892294	0.897912	0.903512	0.909096	0.914663	0.920213	0.925747	0.931265
0.43	0.895214	0.900937	0.906643	0.912333	0.918006	0.923663	0.929303	0.934928	0.940537	0.946130
0.44	0.909460	0.915253	0.921030	0.926791	0.932536	0.938266	0.943980	0.949678	0.955361	0.961029
0.45	0.923753	0.929616	0.935463	0.941295	0.947112	0.952913	0.958700	0.964472	0.970229	0.975971
0.46	0.938102	0.944033	0.949950	0.955852	0.961739	0.967612	0.973471	0.979316	0.985146	0.990963
0.47	0.952513	0.958513	0.964498	0.970470	0.976428	0.982372	0.988302	0.994219	1.000123	1.006013
0.48	0.966996	0.973062	0.979116	0.985157	0.991184	0.997199	1.003201	1.009190	1.015166	1.021129
0.49	0.981558	0.987691	0.993812	0.999921	1.006018	1.012103	1.018175	1.024236	1.030284	1.036320
0.50	0.996207	1.002406	1.008594	1.014771	1.020936	1.027091	1.033234	1.039365	1.045486	1.051595

K = K(V,c) where probability P = V(K,c)

V \ c	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79
0.50	0.996207	1.002406	1.008594	1.014771	1.020936	1.027091	1.033234	1.039365	1.045486	1.051595
0.51	1.010952	1.017216	1.023471	1.029715	1.035948	1.042172	1.048385	1.054587	1.060779	1.066961
0.52	1.025802	1.032131	1.038451	1.044762	1.051063	1.057355	1.063638	1.069911	1.076174	1.082428
0.53	1.040766	1.047158	1.053543	1.059920	1.066289	1.072649	1.079001	1.085344	1.091679	1.098004
0.54	1.055853	1.062309	1.068758	1.075201	1.081636	1.088064	1.094485	1.100898	1.107303	1.113700
0.55	1.071073	1.077592	1.084105	1.090612	1.097114	1.103609	1.110098	1.116581	1.123056	1.129525
0.56	1.086436	1.093017	1.099593	1.106165	1.112733	1.119295	1.125852	1.132404	1.138950	1.145490
0.57	1.101954	1.108595	1.115234	1.121870	1.128503	1.135132	1.141757	1.148377	1.154993	1.161604
0.58	1.117636	1.124338	1.131039	1.137739	1.144436	1.151131	1.157823	1.164512	1.171198	1.177881
0.59	1.133495	1.140257	1.147020	1.153782	1.160544	1.167304	1.174064	1.180821	1.187577	1.194330
0.60	1.149544	1.156365	1.163188	1.170013	1.176838	1.183664	1.190490	1.197316	1.204141	1.210965
0.61	1.165795	1.172674	1.179558	1.186444	1.193333	1.200224	1.207116	1.214010	1.220904	1.227798
0.62	1.182263	1.189200	1.196142	1.203090	1.210042	1.216997	1.223955	1.230916	1.237880	1.244845
0.63	1.198962	1.205956	1.212957	1.219965	1.226979	1.233999	1.241023	1.248051	1.255083	1.262119
0.64	1.215909	1.222958	1.230018	1.237086	1.244161	1.251245	1.258334	1.265430	1.272530	1.279636
0.65	1.233120	1.240225	1.247341	1.254468	1.261606	1.268752	1.275907	1.283069	1.290238	1.297414
0.66	1.250614	1.257773	1.264946	1.272132	1.279330	1.286539	1.293758	1.300987	1.308225	1.315471
0.67	1.268410	1.275623	1.282852	1.290096	1.297354	1.304625	1.311909	1.319204	1.326510	1.333826
0.68	1.286531	1.293796	1.301080	1.308381	1.315699	1.323032	1.330379	1.337741	1.345115	1.352501
0.69	1.304999	1.312316	1.319653	1.327011	1.334387	1.341782	1.349193	1.356620	1.364062	1.371519
0.70	1.323840	1.331207	1.338597	1.346011	1.353446	1.360901	1.368375	1.375868	1.383378	1.390904
0.71	1.343081	1.350497	1.357940	1.365408	1.372901	1.380416	1.387953	1.395511	1.403089	1.410685
0.72	1.362753	1.370217	1.377711	1.385233	1.392782	1.400357	1.407957	1.415580	1.423225	1.430891
0.73	1.382890	1.390400	1.397944	1.405519	1.413124	1.420758	1.428419	1.436107	1.443819	1.451555
0.74	1.403527	1.411082	1.418675	1.426302	1.433962	1.441654	1.449377	1.457129	1.464908	1.472714
0.75	1.424706	1.432306	1.439945	1.447623	1.455338	1.463088	1.470871	1.478686	1.486532	1.494408
0.76	1.446474	1.454115	1.461801	1.469528	1.477296	1.485102	1.492946	1.500824	1.508737	1.516682
0.77	1.468880	1.476562	1.484292	1.492068	1.499887	1.507750	1.515652	1.523594	1.531573	1.539587
0.78	1.491984	1.499704	1.507476	1.515299	1.523169	1.531086	1.539048	1.547051	1.555096	1.563180
0.79	1.515849	1.523606	1.531419	1.539287	1.547207	1.555177	1.563196	1.571262	1.579372	1.587525
0.80	1.540552	1.548342	1.556194	1.564105	1.572073	1.580096	1.588172	1.596298	1.604473	1.612696
0.81	1.566177	1.573999	1.581887	1.589839	1.597853	1.605927	1.614058	1.622244	1.630484	1.638776
0.82	1.592823	1.600673	1.608595	1.616586	1.624645	1.632768	1.640953	1.649199	1.657502	1.665862
0.83	1.620606	1.628480	1.636433	1.644461	1.652561	1.660732	1.668970	1.677273	1.685640	1.694068
0.84	1.649660	1.657555	1.665536	1.673597	1.681737	1.689952	1.698243	1.706602	1.715030	1.723526
0.85	1.680145	1.688058	1.696061	1.704153	1.712329	1.720588	1.728926	1.737341	1.745831	1.754393
0.86	1.712254	1.720179	1.728202	1.736320	1.744529	1.752828	1.761212	1.769680	1.778230	1.786857
0.87	1.746221	1.754152	1.762189	1.770328	1.778567	1.786902	1.795330	1.803849	1.812456	1.821148
0.88	1.782333	1.790264	1.798308	1.806464	1.814727	1.823094	1.831562	1.840129	1.848792	1.857547
0.89	1.820949	1.828872	1.836918	1.845083	1.853364	1.861759	1.870268	1.878875	1.887590	1.896407
0.90	1.862530	1.870435	1.878473	1.886641	1.894934	1.903349	1.911884	1.920536	1.929300	1.938175
0.91	1.907675	1.915552	1.923571	1.931731	1.940027	1.948456	1.957015	1.965701	1.974511	1.983441
0.92	1.957189	1.965023	1.973012	1.981152	1.989440	1.997873	2.006447	2.015160	2.024008	2.032989
0.93	2.012190	2.019963	2.027904	2.036009	2.044275	2.052699	2.061278	2.070008	2.078887	2.087911
0.94	2.074295	2.081985	2.089856	2.097906	2.106131	2.114529	2.123097	2.131831	2.140729	2.149787
0.95	2.145981	2.153556	2.161329	2.169295	2.177454	2.185802	2.194337	2.203 56	2.211956	2.221034
0.96	2.231335	2.238757	2.246383	2.254226	2.262280	2.270543	2.279013	2.287688	2.296564	2.305640
0.97	2.337883	2.345075	2.352499	2.360156	2.368046	2.376167	2.384520	2.393103	2.401913	2.410949
0.98	2.482137	2.488989	2.496094	2.503455	2.511073	2.518951	2.527090	2.535490	2.544151	2.553073
0.99	2.715054	2.721318	2.727853	2.734668	2.741768	2.749162	2.756853	2.764848	2.773150	2.781764

K = K(V,c) where probability P = V(K,c)

V\c	0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89
0.01	0.126817	0.127606	0.128391	0.129170	0.129946	0.130716	0.131482	0.132244	0.133001	0.133754
0.02	0.179812	0.180930	0.182041	0.183146	0.184244	0.185335	0.186421	0.187500	0.188573	0.189640
0.03	0.220801	0.222173	0.223536	0.224890	0.226237	0.227577	0.228908	0.230232	0.231549	0.232858
0.04	0.255634	0.257219	0.258795	0.260362	0.261920	0.263469	0.265010	0.266541	0.268065	0.269580
0.05	0.286569	0.288345	0.290110	0.291865	0.293609	0.295344	0.297069	0.298785	0.300492	0.302189
0.06	0.314765	0.316713	0.318650	0.320575	0.322490	0.324394	0.326287	0.328170	0.330043	0.331906
0.07	0.340908	0.343016	0.345111	0.347194	0.349265	0.351325	0.353374	0.355412	0.357439	0.359455
0.08	0.365445	0.367701	0.369944	0.372175	0.374393	0.376599	0.378794	0.380976	0.383147	0.385307
0.09	0.388684	0.391081	0.393464	0.395834	0.398191	0.400535	0.402867	0.405186	0.407493	0.409789
0.10	0.410852	0.413382	0.415898	0.418401	0.420889	0.423365	0.425827	0.428277	0.430714	0.433138
0.11	0.432118	0.434776	0.437419	0.440048	0.442663	0.445264	0.447852	0.450426	0.452987	0.455535
0.12	0.452615	0.455396	0.458161	0.460912	0.463648	0.466370	0.469077	0.471771	0.474452	0.477119
0.13	0.472449	0.475347	0.478230	0.481098	0.483951	0.486789	0.489613	0.492423	0.495218	0.498000
0.14	0.491704	0.494716	0.497713	0.500695	0.503661	0.506611	0.509547	0.512469	0.515376	0.518269
0.15	0.510450	0.513574	0.516681	0.519773	0.522848	0.525908	0.528953	0.531983	0.534999	0.538000
0.16	0.528748	0.531980	0.535194	0.538393	0.541575	0.544741	0.547892	0.551028	0.554149	0.557255
0.17	0.546647	0.549983	0.553303	0.556605	0.559892	0.563162	0.566416	0.569655	0.572879	0.576088
0.18	0.564191	0.567629	0.571051	0.574455	0.577843	0.581214	0.584570	0.587910	0.591234	0.594543
0.19	0.581415	0.584954	0.588475	0.591979	0.595467	0.598937	0.602392	0.605830	0.609253	0.612660
0.20	0.598355	0.601991	0.605610	0.609212	0.612796	0.616364	0.619916	0.623451	0.626970	0.630474
0.21	0.615037	0.618769	0.622484	0.626182	0.629862	0.633525	0.637172	0.640802	0.644416	0.648014
0.22	0.631487	0.635315	0.639124	0.642915	0.646689	0.650446	0.654186	0.657910	0.661617	0.665308
0.23	0.647730	0.651650	0.655551	0.659435	0.663301	0.667151	0.670984	0.674798	0.678597	0.682380
0.24	0.663785	0.667796	0.671788	0.675763	0.679720	0.683660	0.687583	0.691489	0.695379	0.699252
0.25	0.679671	0.683771	0.687854	0.691918	0.695965	0.699994	0.704007	0.708002	0.711981	0.715944
0.26	0.695405	0.699594	0.703765	0.707918	0.712053	0.716171	0.720271	0.724355	0.728422	0.732473
0.27	0.711003	0.715280	0.719538	0.723778	0.728000	0.732205	0.736393	0.740564	0.744718	0.748856
0.28	0.726480	0.730843	0.735187	0.739514	0.743822	0.748113	0.752387	0.756644	0.760884	0.765108
0.29	0.741849	0.746297	0.750726	0.755138	0.759532	0.763908	0.768267	0.772610	0.776935	0.781245
0.30	0.757123	0.761655	0.766169	0.770665	0.775143	0.779604	0.784047	0.788474	0.792884	0.797278
0.31	0.772313	0.776928	0.781526	0.786105	0.790667	0.795211	0.799738	0.804249	0.808743	0.813220
0.32	0.787431	0.792129	0.796809	0.801471	0.806115	0.810742	0.815353	0.819946	0.824523	0.829084
0.33	0.802488	0.807267	0.812029	0.816773	0.821499	0.826208	0.830901	0.835577	0.840236	0.844880
0.34	0.817492	0.822353	0.827196	0.832021	0.836829	0.841620	0.846394	0.851151	0.855893	0.860618
0.35	0.832455	0.837396	0.842319	0.847225	0.852114	0.856985	0.861841	0.866679	0.871502	0.876309
0.36	0.847386	0.852406	0.857409	0.862395	0.867364	0.872316	0.877251	0.882171	0.887075	0.891963
0.37	0.862292	0.867392	0.872474	0.877539	0.882587	0.887620	0.892635	0.897635	0.902620	0.907588
0.38	0.877184	0.882362	0.887522	0.892667	0.897794	0.902906	0.908001	0.913081	0.918146	0.923195
0.39	0.892069	0.897325	0.902564	0.907786	0.912993	0.918183	0.923358	0.928517	0.933662	0.938791
0.40	0.906956	0.912289	0.917606	0.922906	0.928191	0.933460	0.938714	0.943953	0.949176	0.954385
0.41	0.921853	0.927263	0.932657	0.938035	0.943398	0.948745	0.954077	0.959395	0.964698	0.969986
0.42	0.936767	0.942254	0.947725	0.953180	0.958621	0.964046	0.969457	0.974853	0.980235	0.985603
0.43	0.951708	0.957271	0.962818	0.968350	0.973868	0.979371	0.984860	0.990335	0.995796	1.001242
0.44	0.966683	0.972321	0.977944	0.983554	0.989148	0.994729	1.000296	1.005849	1.011388	1.016914
0.45	0.981699	0.987413	0.993112	0.998793	1.004469	1.010127	1.015772	1.021403	1.027021	1.032626
0.46	0.996765	1.002554	1.008329	1.014091	1.019839	1.025574	1.031296	1.037005	1.042702	1.048386
0.47	1.011890	1.017753	1.023604	1.029441	1.035266	1.041078	1.046878	1.052665	1.058440	1.064202
0.48	1.027080	1.033018	1.038944	1.044857	1.050758	1.056647	1.062524	1.068389	1.074242	1.080084
0.49	1.042345	1.048357	1.054358	1.060347	1.066324	1.072290	1.078244	1.084187	1.090118	1.096039
0.50	1.057693	1.063779	1.069855	1.075919	1.081972	1.088015	1.094046	1.100067	1.106077	1.112077

K = K(V,c) where probability P = V(K,c)

V\c	0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89
0.50	1.057693	1.063779	1.069855	1.075919	1.081972	1.088015	1.094046	1.100067	1.106077	1.112077
0.51	1.073132	1.079292	1.085442	1.091582	1.097711	1.103831	1.109939	1.116038	1.122127	1.128205
0.52	1.088672	1.094906	1.101130	1.107345	1.113551	1.119746	1.125933	1.132109	1.138277	1.144435
0.53	1.104321	1.110629	1.116928	1.123218	1.129499	1.135772	1.142035	1.148290	1.154536	1.160774
0.54	1.120090	1.126471	1.132844	1.139210	1.145567	1.151916	1.158257	1.164590	1.170916	1.177233
0.55	1.135987	1.142442	1.148890	1.155330	1.161763	1.168189	1.174608	1.181020	1.187424	1.193821
0.56	1.152024	1.158552	1.165074	1.171590	1.178099	1.184602	1.191099	1.197589	1.204073	1.210550
0.57	1.168211	1.174812	1.181408	1.187999	1.194585	1.201165	1.207740	1.214309	1.220873	1.227431
0.58	1.184559	1.191234	1.197904	1.204570	1.211232	1.217890	1.224543	1.231191	1.237835	1.244474
0.59	1.201080	1.207828	1.214573	1.221315	1.228053	1.234788	1.241519	1.248247	1.254971	1.261691
0.60	1.217787	1.224608	1.231427	1.238244	1.245059	1.251872	1.258682	1.265490	1.272295	1.279097
0.61	1.234693	1.241587	1.248481	1.255373	1.262265	1.269156	1.276045	1.282933	1.289819	1.296704
0.62	1.251811	1.258778	1.265747	1.272715	1.279684	1.286653	1.293622	1.300590	1.307558	1.314526
0.63	1.269157	1.276198	1.283241	1.290285	1.297332	1.304379	1.311428	1.318477	1.325528	1.332578
0.64	1.286746	1.293861	1.300978	1.308099	1.315223	1.322350	1.329479	1.336610	1.343743	1.350878
0.65	1.304596	1.311784	1.318977	1.326174	1.333376	1.340582	1.347792	1.355005	1.362221	1.369441
0.66	1.322725	1.329986	1.337254	1.344528	1.351809	1.359094	1.366386	1.373681	1.380982	1.388287
0.67	1.341152	1.348487	1.355831	1.363182	1.370541	1.377907	1.385280	1.392659	1.400045	1.407436
0.68	1.359899	1.367308	1.374727	1.382156	1.389594	1.397041	1.404496	1.411960	1.419431	1.426909
0.69	1.378989	1.386472	1.393967	1.401473	1.408991	1.416519	1.424058	1.431606	1.439163	1.446730
0.70	1.398446	1.406003	1.413575	1.421159	1.428757	1.436368	1.443990	1.451624	1.459269	1.466924
0.71	1.418299	1.425931	1.433578	1.441242	1.448920	1.456613	1.464320	1.472041	1.479774	1.487519
0.72	1.438577	1.446283	1.454008	1.461751	1.469510	1.477287	1.485079	1.492887	1.500709	1.508546
0.73	1.459314	1.467095	1.474897	1.482719	1.490561	1.498421	1.506300	1.514196	1.522109	1.530038
0.74	1.480545	1.488401	1.496281	1.504183	1.512107	1.520053	1.528018	1.536004	1.544009	1.552032
0.75	1.502312	1.510243	1.518201	1.526184	1.534191	1.542222	1.550276	1.558353	1.566450	1.574569
0.76	1.524659	1.532666	1.540702	1.548765	1.556858	1.564976	1.573119	1.581287	1.589479	1.597694
0.77	1.547637	1.555720	1.563835	1.571981	1.580158	1.588363	1.596597	1.604858	1.613146	1.621460
0.78	1.571303	1.579462	1.587656	1.595885	1.604148	1.612442	1.620767	1.629123	1.637509	1.645923
0.79	1.595721	1.603956	1.612231	1.620543	1.628892	1.637276	1.645695	1.654147	1.662632	1.671148
0.80	1.620964	1.629276	1.637632	1.646028	1.654465	1.662940	1.671453	1.680004	1.688589	1.697210
0.81	1.647117	1.655506	1.663943	1.672424	1.680949	1.689517	1.698127	1.706777	1.715466	1.724193
0.82	1.674276	1.682743	1.691261	1.699823	1.708444	1.717106	1.725813	1.734565	1.743359	1.752196
0.83	1.702555	1.711099	1.719699	1.728353	1.737060	1.745818	1.754625	1.763480	1.772383	1.781332
0.84	1.732085	1.740707	1.749390	1.758132	1.766931	1.775786	1.784695	1.793657	1.802671	1.811734
0.85	1.763025	1.771725	1.780491	1.789322	1.798215	1.807169	1.816182	1.825253	1.834380	1.843562
0.86	1.795561	1.804340	1.813190	1.822110	1.831099	1.840153	1.849273	1.858456	1.867700	1.877005
0.87	1.829924	1.838780	1.847715	1.856726	1.865811	1.874969	1.884198	1.893496	1.902861	1.912292
0.88	1.866393	1.875327	1.884347	1.893450	1.902634	1.911897	1.921238	1.930655	1.940145	1.949707
0.89	1.905322	1.914333	1.923437	1.932633	1.941918	1.951290	1.960746	1.970285	1.979905	1.989604
0.90	1.947158	1.956246	1.965436	1.974725	1.984112	1.993595	2.003170	2.012836	2.022591	2.032433
0.91	1.992488	2.001651	2.010926	2.020310	2.029802	2.039398	2.049096	2.058894	2.068790	2.078782
0.92	2.042098	2.051334	2.060692	2.070172	2.079770	2.089482	2.099308	2.109244	2.119289	2.129439
0.93	2.097077	2.106382	2.115823	2.125398	2.135103	2.144937	2.154895	2.164976	2.175177	2.185496
0.94	2.159002	2.168372	2.177892	2.187561	2.197375	2.207333	2.217429	2.227663	2.238031	2.248531
0.95	2.230287	2.239713	2.249307	2.259068	2.268991	2.279075	2.289316	2.299712	2.310259	2.320955
0.96	2.314913	2.324380	2.334038	2.343884	2.353915	2.364128	2.374520	2.385089	2.395831	2.406743
0.97	2.420209	2.429691	2.439392	2.449309	2.459440	2.469782	2.480331	2.491086	2.502042	2.513198
0.98	2.562255	2.571696	2.581395	2.591349	2.601557	2.612016	2.622724	2.633678	2.644876	2.656314
0.99	2.790691	2.799935	2.809497	2.819377	2.829577	2.840096	2.850932	2.862087	2.873556	2.885340

K = K(V,c) where probability P = V(K,c)

V\c	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.00
0.01	0.134503	0.135248	0.135989	0.136726	0.137458	0.138187	0.138913	0.139634	0.140352	0.141066	0.141777
0.02	0.190701	0.191757	0.192806	0.193851	0.194889	0.195923	0.196951	0.197973	0.198991	0.200003	0.201011
0.03	0.234161	0.235456	0.236744	0.238026	0.239301	0.240569	0.241831	0.243087	0.244336	0.245579	0.246817
0.04	0.271087	0.272585	0.274076	0.275559	0.277035	0.278503	0.279964	0.281417	0.282863	0.284302	0.285734
0.05	0.303877	0.305556	0.307226	0.308888	0.310542	0.312187	0.313824	0.315452	0.317073	0.318686	0.320291
0.06	0.333759	0.335602	0.337436	0.339260	0.341076	0.342882	0.344679	0.346468	0.348248	0.350019	0.351782
0.07	0.361460	0.363455	0.365441	0.367416	0.369381	0.371337	0.373283	0.375219	0.377147	0.379065	0.380974
0.08	0.387455	0.389593	0.391720	0.393836	0.395942	0.398037	0.400123	0.402198	0.404264	0.406320	0.408367
0.09	0.412072	0.414345	0.416605	0.418855	0.421094	0.423322	0.425539	0.427746	0.429943	0.432129	0.434306
0.10	0.435551	0.437951	0.440340	0.442716	0.445082	0.447436	0.449779	0.452111	0.454432	0.456743	0.459044
0.11	0.458071	0.460594	0.463104	0.465603	0.468090	0.470565	0.473028	0.475481	0.477922	0.480352	0.482771
0.12	0.479773	0.482414	0.485042	0.487658	0.490261	0.492853	0.495432	0.498000	0.500556	0.503101	0.505635
0.13	0.500768	0.503523	0.506265	0.508994	0.511710	0.514414	0.517106	0.519786	0.522453	0.525109	0.527754
0.14	0.521148	0.524013	0.526865	0.529704	0.532530	0.535343	0.538143	0.540931	0.543707	0.546471	0.549223
0.15	0.540986	0.543959	0.546918	0.549864	0.552796	0.555715	0.558621	0.561515	0.564396	0.567264	0.570121
0.16	0.560346	0.563424	0.566487	0.569536	0.572572	0.575595	0.578604	0.581601	0.584584	0.587555	0.590514
0.17	0.579281	0.582461	0.585626	0.588777	0.591914	0.595037	0.598148	0.601245	0.604328	0.607400	0.610458
0.18	0.597837	0.601116	0.604381	0.607631	0.610867	0.614090	0.617298	0.620494	0.623676	0.626845	0.630001
0.19	0.616052	0.619429	0.622791	0.626139	0.629472	0.632792	0.636097	0.639389	0.642668	0.645933	0.649186
0.20	0.633962	0.637435	0.640893	0.644336	0.647765	0.651180	0.654580	0.657967	0.661341	0.664700	0.668047
0.21	0.651597	0.655164	0.658716	0.662254	0.665776	0.669285	0.672779	0.676259	0.679726	0.683179	0.686618
0.22	0.668984	0.672644	0.676289	0.679919	0.683534	0.687134	0.690721	0.694293	0.697851	0.701396	0.704927
0.23	0.686147	0.689899	0.693635	0.697356	0.701062	0.704754	0.708431	0.712094	0.715743	0.719379	0.723000
0.24	0.703110	0.706951	0.710778	0.714589	0.718385	0.722166	0.725933	0.729686	0.733424	0.737149	0.740860
0.25	0.719890	0.723821	0.727736	0.731636	0.735521	0.739391	0.743247	0.747088	0.750915	0.754728	0.758528
0.26	0.736507	0.740526	0.744529	0.748517	0.752490	0.756448	0.760391	0.764320	0.768234	0.772135	0.776022
0.27	0.752977	0.757083	0.761173	0.765248	0.769308	0.773353	0.777383	0.781398	0.785400	0.789387	0.793361
0.28	0.769316	0.773508	0.777684	0.781845	0.785991	0.790122	0.794238	0.798340	0.802427	0.806501	0.810560
0.29	0.785538	0.789815	0.794077	0.798323	0.802554	0.806770	0.810972	0.815159	0.819332	0.823491	0.827636
0.30	0.801656	0.806017	0.810364	0.814695	0.819010	0.823311	0.827598	0.831869	0.836127	0.840371	0.844600
0.31	0.817682	0.822128	0.826558	0.830973	0.835373	0.839758	0.844128	0.848484	0.852826	0.857154	0.861468
0.32	0.833629	0.838158	0.842671	0.847170	0.851653	0.856122	0.860576	0.865016	0.869441	0.873853	0.878251
0.33	0.849507	0.854119	0.858715	0.863297	0.867863	0.872415	0.876952	0.881475	0.885984	0.890479	0.894961
0.34	0.865328	0.870022	0.874701	0.879365	0.884014	0.888648	0.893268	0.897874	0.902466	0.907044	0.911609
0.35	0.881101	0.885876	0.890637	0.895383	0.900114	0.904831	0.909534	0.914222	0.918897	0.923558	0.928206
0.36	0.896835	0.901693	0.906535	0.911363	0.916176	0.920975	0.925759	0.930530	0.935287	0.940031	0.944761
0.37	0.912542	0.917480	0.922404	0.927313	0.932208	0.937088	0.941955	0.946808	0.951647	0.956473	0.961286
0.38	0.928229	0.933248	0.938252	0.943243	0.948219	0.953181	0.958129	0.963064	0.967985	0.972894	0.977789
0.39	0.943905	0.949005	0.954090	0.959161	0.964218	0.969262	0.974292	0.979308	0.984312	0.989302	0.994280
0.40	0.959579	0.964759	0.969925	0.975077	0.980215	0.985340	0.990451	0.995550	1.000635	1.005708	1.010768
0.41	0.975260	0.980520	0.985767	0.990999	0.996218	1.001424	1.006617	1.011797	1.016964	1.022119	1.027261
0.42	0.990956	0.996296	1.001623	1.006936	1.012236	1.017523	1.022797	1.028058	1.033308	1.038544	1.043769
0.43	1.006676	1.012096	1.017502	1.022896	1.028277	1.033645	1.039000	1.044343	1.049674	1.054993	1.060301
0.44	1.022427	1.027926	1.033413	1.038887	1.044349	1.049798	1.055235	1.060660	1.066073	1.071474	1.076864
0.45	1.038218	1.043797	1.049364	1.054919	1.060461	1.065991	1.071510	1.077017	1.082512	1.087996	1.093469
0.46	1.054057	1.059716	1.065363	1.070998	1.076621	1.082233	1.087833	1.093422	1.099000	1.104567	1.110123
0.47	1.069953	1.075692	1.081419	1.087135	1.092839	1.098532	1.104214	1.109885	1.115546	1.121195	1.126835
0.48	1.085914	1.091733	1.097540	1.103337	1.109122	1.114897	1.120661	1.126415	1.132158	1.137891	1.143614
0.49	1.101949	1.107847	1.113735	1.119613	1.125480	1.131336	1.137183	1.143019	1.148846	1.154662	1.160469
0.50	1.118066	1.124045	1.130013	1.135972	1.141920	1.147859	1.153788	1.159708	1.165618	1.171518	1.177410

K = K(V,c) where probability P = V(K,c)

V\c	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.00
0.50	1.118066	1.124045	1.130013	1.135972	1.141920	1.147859	1.153788	1.159708	1.165618	1.171518	1.177410
0.51	1.134274	1.140333	1.146383	1.152423	1.158453	1.164475	1.170487	1.176490	1.182484	1.188469	1.194445
0.52	1.150584	1.156723	1.162854	1.168975	1.175088	1.181192	1.187288	1.193374	1.199453	1.205523	1.211585
0.53	1.167003	1.173223	1.179435	1.185639	1.191834	1.198022	1.204201	1.210372	1.216535	1.222691	1.228839
0.54	1.183542	1.189844	1.196137	1.202423	1.208702	1.214973	1.221236	1.227492	1.233741	1.239983	1.246217
0.55	1.200211	1.206594	1.212970	1.219339	1.225701	1.232056	1.238404	1.244746	1.251081	1.257409	1.263731
0.56	1.217021	1.223486	1.229945	1.236397	1.242842	1.249282	1.255716	1.262143	1.268565	1.274980	1.281390
0.57	1.233983	1.240530	1.247071	1.253607	1.260138	1.266662	1.273182	1.279696	1.286205	1.292709	1.299208
0.58	1.251108	1.257737	1.264362	1.270982	1.277598	1.284209	1.290815	1.297417	1.304014	1.310606	1.317194
0.59	1.268408	1.275121	1.281830	1.288535	1.295236	1.301933	1.308627	1.315317	1.322003	1.328685	1.335364
0.60	1.285896	1.292693	1.299486	1.306277	1.313065	1.319849	1.326631	1.333410	1.340186	1.346959	1.353729
0.61	1.303586	1.310467	1.317346	1.324223	1.331098	1.337970	1.344841	1.351710	1.358576	1.365441	1.372304
0.62	1.321492	1.328458	1.335423	1.342387	1.349350	1.356311	1.363272	1.370232	1.377190	1.384147	1.391103
0.63	1.339629	1.346681	1.353732	1.360784	1.367836	1.374887	1.381939	1.388990	1.396042	1.403093	1.410143
0.64	1.358014	1.365152	1.372291	1.379431	1.386573	1.393715	1.400859	1.408003	1.415148	1.422295	1.429441
0.65	1.376663	1.383889	1.391116	1.398346	1.405578	1.412813	1.420049	1.427288	1.434528	1.441771	1.449015
0.66	1.395596	1.402910	1.410227	1.417547	1.424871	1.432199	1.439530	1.446864	1.454201	1.461541	1.468884
0.67	1.414833	1.422235	1.429643	1.437055	1.444472	1.451894	1.459320	1.466751	1.474186	1.481625	1.489069
0.68	1.434395	1.441887	1.449386	1.456891	1.464403	1.471920	1.479443	1.486972	1.494507	1.502047	1.509592
0.69	1.454305	1.461889	1.469480	1.477080	1.484687	1.492301	1.499923	1.507552	1.515187	1.522830	1.530479
0.70	1.474590	1.482266	1.489951	1.497646	1.505351	1.513064	1.520785	1.528516	1.536254	1.544001	1.551756
0.71	1.495277	1.503047	1.510827	1.518619	1.526422	1.534235	1.542059	1.549892	1.557736	1.565589	1.573451
0.72	1.516397	1.524261	1.532139	1.540029	1.547932	1.555848	1.563775	1.571713	1.579664	1.587625	1.595597
0.73	1.537983	1.545944	1.553920	1.561911	1.569916	1.577935	1.585967	1.594013	1.602072	1.610145	1.618229
0.74	1.560073	1.568132	1.576208	1.584300	1.592409	1.600534	1.608674	1.616830	1.625001	1.633186	1.641386
0.75	1.582708	1.590866	1.599044	1.607240	1.615455	1.623688	1.631938	1.640206	1.648491	1.656792	1.665109
0.76	1.605932	1.614192	1.622474	1.630777	1.639100	1.647443	1.655806	1.664188	1.672589	1.681009	1.689447
0.77	1.629799	1.638162	1.646550	1.654961	1.663395	1.671851	1.680329	1.688829	1.697350	1.705892	1.714454
0.78	1.654365	1.662834	1.671330	1.679852	1.688399	1.696971	1.705567	1.714188	1.722832	1.731499	1.740188
0.79	1.679695	1.688273	1.696879	1.705514	1.714178	1.722869	1.731587	1.740331	1.749102	1.757898	1.766719
0.80	1.705865	1.714552	1.723273	1.732024	1.740807	1.749621	1.758463	1.767336	1.776237	1.785166	1.794123
0.81	1.732958	1.741759	1.750596	1.759467	1.768373	1.777312	1.786284	1.795288	1.804324	1.813391	1.822488
0.82	1.761073	1.769991	1.778948	1.787943	1.796975	1.806044	1.815149	1.824290	1.833465	1.842674	1.851917
0.83	1.790325	1.799363	1.808443	1.817565	1.826728	1.835932	1.845175	1.854457	1.863777	1.873134	1.882529
0.84	1.820847	1.830008	1.839216	1.848470	1.857769	1.867112	1.876498	1.885927	1.895397	1.904909	1.914462
0.85	1.852798	1.862087	1.871427	1.880817	1.890257	1.899745	1.909280	1.918862	1.928490	1.938163	1.947881
0.86	1.886368	1.895789	1.905266	1.914798	1.924385	1.934024	1.943716	1.953458	1.963251	1.973093	1.982984
0.87	1.921788	1.931346	1.940966	1.950647	1.960386	1.970184	1.980039	1.989950	1.999916	2.009937	2.020010
0.88	1.959340	1.969042	1.978812	1.988647	1.998548	2.008513	2.018540	2.028629	2.038778	2.048987	2.059254
0.89	1.999380	2.009233	2.019159	2.029159	2.039229	2.049370	2.059579	2.069857	2.080200	2.090609	2.101083
0.90	2.042360	2.052370	2.062452	2.072635	2.082886	2.093214	2.103618	2.114096	2.124648	2.135271	2.145966
0.91	2.088868	2.099046	2.109314	2.119670	2.130114	2.140642	2.151255	2.161949	2.172725	2.183580	2.194514
0.92	2.139694	2.150050	2.160506	2.171060	2.181711	2.192456	2.203294	2.214223	2.225242	2.236350	2.247545
0.93	2.195931	2.206479	2.217138	2.227907	2.238783	2.249764	2.260849	2.272036	2.283323	2.294709	2.306192
0.94	2.259160	2.269917	2.280798	2.291802	2.302927	2.314169	2.325529	2.337002	2.348589	2.360286	2.372092
0.95	2.331798	2.342784	2.353912	2.365179	2.376582	2.388120	2.399789	2.411589	2.423516	2.435569	2.447747
0.96	2.417823	2.429069	2.440476	2.452043	2.463767	2.475646	2.487676	2.499856	2.512184	2.524657	2.537272
0.97	2.524550	2.536095	2.547831	2.559754	2.571861	2.584151	2.596619	2.609264	2.622082	2.635071	2.648229
0.98	2.667990	2.679901	2.692044	2.704415	2.717012	2.729831	2.742869	2.756123	2.769589	2.783266	2.797150
0.99	2.897435	2.909839	2.922549	2.935562	2.948876	2.962486	2.976388	2.990581	3.005058	3.019817	3.034854

K = K(V,c) where probability P ≡ V(K,c)

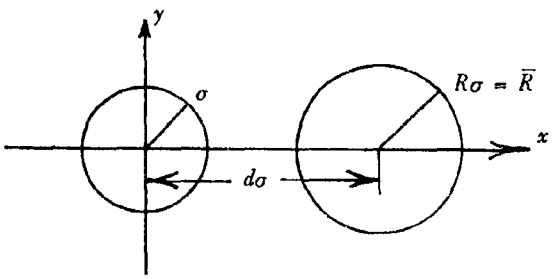
V|c	0.00	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50
0.990000	2.575829	2.577781	2.580251	2.583766	2.588390	2.594209	2.601342	2.609951	2.620254	2.632567
0.990500	2.593516	2.595455	2.597908	2.601399	2.605991	2.611770	2.618853	2.627401	2.637631	2.649852
0.991000	2.612054	2.613979	2.616414	2.619881	2.624440	2.630177	2.637209	2.645694	2.655847	2.667974
0.991500	2.631535	2.633446	2.635863	2.639304	2.643829	2.649523	2.656502	2.664922	2.674996	2.687026
0.992000	2.652070	2.653965	2.656364	2.659778	2.664268	2.669917	2.676841	2.685193	2.695186	2.707115
0.992500	2.673787	2.675667	2.678046	2.681432	2.685885	2.691489	2.698355	2.706637	2.716544	2.728369
0.993000	2.696844	2.698708	2.701067	2.704424	2.708838	2.714393	2.721199	2.729409	2.739227	2.750943
0.993500	2.721431	2.723278	2.725615	2.728942	2.733316	2.738820	2.745563	2.753695	2.763422	2.775024
0.994000	2.747781	2.749611	2.751926	2.755220	2.759552	2.765002	2.771680	2.779730	2.789361	2.800844
0.994500	2.776190	2.778001	2.780292	2.783553	2.787840	2.793234	2.799842	2.807810	2.817335	2.828692
0.995000	2.807034	2.808825	2.811090	2.814315	2.818555	2.823889	2.830423	2.838301	2.847717	2.858941
0.995500	2.840804	2.842573	2.844812	2.847998	2.852187	2.857457	2.863912	2.871693	2.880993	2.892075
0.996000	2.878162	2.879908	2.882118	2.885263	2.889397	2.894597	2.900967	2.908645	2.917819	2.928749
0.996500	2.920028	2.921749	2.923927	2.927027	2.931101	2.936226	2.942503	2.950068	2.959106	2.969869
0.997000	2.967738	2.969432	2.971575	2.974624	2.978633	2.983674	2.989849	2.997289	3.006176	3.016757
0.997500	3.023341	3.025004	3.027107	3.030100	3.034035	3.038983	3.045042	3.052342	3.061060	3.071436
0.998000	3.090232	3.091859	3.093917	3.096845	3.100694	3.105533	3.111459	3.118598	3.127120	3.137261
0.998500	3.174684	3.176267	3.178270	3.181120	3.184865	3.189575	3.195341	3.202286	3.210575	3.220433
0.999000	3.290527	3.292054	3.293987	3.296736	3.300349	3.304892	3.310452	3.317147	3.325136	3.334632
0.999100	3.320054	3.321568	3.323483	3.326208	3.329789	3.334291	3.339801	3.346436	3.354351	3.363760
0.999200	3.352795	3.354294	3.356190	3.358888	3.362434	3.366892	3.372347	3.378916	3.386752	3.396065
0.999300	3.389579	3.391062	3.392938	3.395606	3.399114	3.403522	3.408918	3.415414	3.423163	3.432371
0.999400	3.431614	3.433079	3.434932	3.437568	3.441032	3.445386	3.450715	3.457130	3.464782	3.473873
0.999500	3.480756	3.482200	3.484027	3.486625	3.490040	3.494333	3.499585	3.505909	3.513449	3.522408
0.999600	3.540084	3.541504	3.543299	3.545854	3.549212	3.553432	3.558595	3.564811	3.572222	3.581025
0.999700	3.615300	3.616690	3.618449	3.620950	3.624237	3.628369	3.633424	3.639508	3.646762	3.655376
0.999800	3.719016	3.720368	3.722077	3.724509	3.727704	3.731720	3.736632	3.742544	3.749592	3.757958
0.999900	3.890592	3.891884	3.893518	3.895842	3.898895	3.902733	3.907427	3.913075	3.919805	3.927792
0.999910	3.916081	3.917364	3.918988	3.921297	3.924330	3.928143	3.932806	3.938416	3.945102	3.953036
0.999920	3.944400	3.945674	3.947286	3.949578	3.952590	3.956375	3.961004	3.966574	3.973211	3.981086
0.999930	3.976286	3.977550	3.979148	3.981422	3.984410	3.988164	3.992756	3.998281	4.004863	4.012674
0.999940	4.012811	4.014063	4.015647	4.017901	4.020861	4.024581	4.029131	4.034604	4.041126	4.048864
0.999950	4.055627	4.056866	4.058434	4.060663	4.063592	4.067272	4.071774	4.077189	4.083641	4.091295
0.999960	4.107480	4.108703	4.110251	4.112452	4.115344	4.118977	4.123422	4.128767	4.135137	4.142692
0.999970	4.173466	4.174671	4.176194	4.178360	4.181206	4.184782	4.189155	4.194416	4.200682	4.208115
0.999980	4.264891	4.266059	4.267560	4.269679	4.272464	4.275963	4.280242	4.285388	4.291519	4.298789
0.999990	4.417173	4.418311	4.419750	4.421797	4.424485	4.427863	4.431993	4.436960	4.442876	4.449891
0.999991	4.439902	4.441034	4.442465	4.444501	4.447176	4.450536	4.454645	4.459587	4.465472	4.472450
0.999992	4.465184	4.466309	4.467733	4.469757	4.472417	4.475758	4.479844	4.484757	4.490609	4.497546
0.999993	4.493689	4.494807	4.496221	4.498233	4.500876	4.504195	4.508255	4.513137	4.518951	4.525844
0.999994	4.526389	4.527500	4.528904	4.530901	4.533524	4.536820	4.540850	4.545696	4.551468	4.558310
0.999995	4.564788	4.565889	4.567281	4.569261	4.571863	4.575131	4.579126	4.583932	4.589654	4.596437
0.999996	4.611382	4.612472	4.613851	4.615811	4.618386	4.621620	4.625576	4.630332	4.635995	4.642709
0.999997	4.670820	4.671896	4.673257	4.675192	4.677734	4.680927	4.684832	4.689527	4.695118	4.701745
0.999998	4.753424	4.754482	4.755819	4.757720	4.760218	4.763356	4.767192	4.771805	4.777297	4.783807
0.999999	4.891638	4.892665	4.893965	4.895813	4.898240	4.901289	4.905016	4.909498	4.914833	4.921156

K = K(V,c) where probability P = V(K,c)

V\c	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
0.990000	2.647356	2.665332	2.687498	2.715054	2.749162	2.790691	2.840096	2.897435	2.962486	3.034854
0.990500	2.664525	2.682353	2.704334	2.731680	2.765586	2.806967	2.856317	2.913727	2.978988	3.051709
0.991000	2.682529	2.700204	2.721994	2.749122	2.782816	2.824037	2.873327	2.930807	2.996286	3.069375
0.991500	2.701458	2.718976	2.740567	2.767467	2.800938	2.841990	2.891212	2.948761	3.014466	3.087941
0.992000	2.721420	2.738775	2.760161	2.786823	2.820057	2.860927	2.910072	2.967691	3.033631	3.107511
0.992500	2.742544	2.759730	2.780901	2.807314	2.840297	2.880971	2.930031	2.987718	3.053903	3.128211
0.993000	2.764981	2.781992	2.802941	2.829090	2.861808	2.902269	2.951233	3.008987	3.075428	3.150189
0.993500	2.788920	2.805748	2.826463	2.852336	2.884770	2.925001	2.973855	3.031674	3.098384	3.173627
0.994000	2.814591	2.831227	2.851698	2.877278	2.909407	2.949388	2.998118	3.055999	3.122992	3.198748
0.994500	2.842283	2.858719	2.878942	2.904200	2.936001	2.975706	3.024295	3.082234	3.149527	3.225835
0.995000	2.872366	2.888590	2.908529	2.933466	2.964911	3.004312	3.052738	3.110731	3.178341	3.255247
0.995500	2.905324	2.921322	2.940971	2.965550	2.996608	3.035671	3.083907	3.141948	3.209897	3.287454
0.996000	2.941808	2.957565	2.976902	3.001094	3.031725	3.070408	3.118422	3.176501	3.244816	3.323089
0.996500	2.982724	2.998220	3.017219	3.040987	3.071144	3.109394	3.157144	3.215250	3.283961	3.363032
0.997000	3.029386	3.044597	3.063225	3.086524	3.116147	3.153896	3.201327	3.259440	3.328585	3.408561
0.997500	3.083813	3.098706	3.116921	3.139692	3.168701	3.205858	3.252894	3.310986	3.380616	3.461637
0.998000	3.149349	3.163878	3.181621	3.203783	3.232069	3.268508	3.315037	3.373063	3.443243	3.525509
0.998500	3.232177	3.246274	3.263458	3.284892	3.312292	3.347816	3.393660	3.451542	3.522366	3.606186
0.999000	3.345936	3.359486	3.375964	3.396471	3.422709	3.456978	3.501814	3.559390	3.631003	3.716922
0.999100	3.374957	3.388374	3.404683	3.424966	3.450919	3.484869	3.529438	3.586916	3.658714	3.745161
0.999200	3.407147	3.420421	3.436545	3.456587	3.482229	3.515828	3.560094	3.617455	3.689449	3.776480
0.999300	3.443326	3.456443	3.472366	3.492142	3.517442	3.550648	3.594570	3.651789	3.723993	3.811674
0.999400	3.484686	3.497628	3.513329	3.532811	3.557727	3.590488	3.634010	3.691053	3.763484	3.851904
0.999500	3.533060	3.545805	3.561254	3.580403	3.604884	3.637129	3.680176	3.736994	3.809673	3.898949
0.999600	3.591490	3.604004	3.619162	3.637926	3.661897	3.693528	3.735992	3.792515	3.865467	3.955767
0.999700	3.665612	3.677848	3.692652	3.710952	3.734304	3.765171	3.806884	3.862994	3.936253	4.027835
0.999800	3.767896	3.779767	3.794114	3.811813	3.834359	3.864206	3.904868	3.960345	4.033953	4.127273
0.999900	3.937275	3.948592	3.962246	3.979043	4.000368	4.028618	4.067529	4.121812	4.195814	4.291932
0.999910	3.962455	3.973694	3.987251	4.003923	4.025079	4.053101	4.091752	4.145844	4.219886	4.316411
0.999920	3.990435	4.001589	4.015041	4.031576	4.052546	4.080319	4.118682	4.172558	4.246638	4.343612
0.999930	4.021945	4.033005	4.046340	4.062724	4.083489	4.110987	4.149026	4.202653	4.276769	4.374246
0.999940	4.058047	4.069001	4.082205	4.098420	4.118956	4.146142	4.183812	4.237149	4.311296	4.409346
0.999950	4.100378	4.111210	4.124264	4.140286	4.160560	4.187388	4.224628	4.277617	4.351789	4.450503
0.999960	4.151657	4.162345	4.175222	4.191016	4.210983	4.237389	4.274110	4.326668	4.400852	4.500362
0.999970	4.216934	4.227446	4.240104	4.255620	4.275209	4.301093	4.337164	4.389158	4.463329	4.563839
0.999980	4.307413	4.317689	4.330058	4.345204	4.364297	4.389489	4.424672	4.475861	4.549964	4.651834
0.999990	4.458209	4.468117	4.480033	4.494606	4.512932	4.537045	4.570797	4.620597	4.694459	4.798526
0.999991	4.480724	4.490579	4.502431	4.516923	4.535139	4.559100	4.592644	4.642232	4.716045	4.820433
0.999992	4.505772	4.515569	4.527350	4.541752	4.559850	4.583642	4.616956	4.666308	4.740063	4.844805
0.999993	4.534016	4.543749	4.555451	4.569753	4.587718	4.611324	4.644382	4.693466	4.767149	4.872289
0.999994	4.566422	4.576082	4.587694	4.601884	4.619701	4.643096	4.675862	4.724638	4.798234	4.903825
0.999995	4.604479	4.614055	4.625565	4.639625	4.657270	4.680423	4.712852	4.761263	4.834748	4.940865
0.999996	4.650668	4.660143	4.671531	4.685438	4.702879	4.725745	4.757771	4.805739	4.879076	4.985823
0.999997	4.709599	4.718950	4.730185	4.743901	4.761091	4.783602	4.815123	4.862523	4.935654	5.043193
0.999998	4.791522	4.800705	4.811735	4.825195	4.842049	4.864085	4.894925	4.941532	5.014343	5.122961
0.999999	4.928648	4.937563	4.948268	4.961321	4.977643	4.998933	5.028684	5.073966	5.146157	5.256522

APPENDIX E
INVERSE TABLE OF $P(R, d)$

IDENTIFICATIONS FOR THE $P(R, d)$ TABLE



Distribution is circular normal with common standard deviation σ, in the x and y directions, and mean at the origin.

$R\sigma$ is the radius of the circle over which the integral is evaluated. Center of circle is at $(d\sigma, o)$.

This is an inverse table. R is given as a function of P (probability) and d.

Ranges for the variables

Main table:

$$\left.\begin{array}{l} d = 0(0.1)5(0.2)10(2)20(5)120 \\ P = 0.01(0.01)0.99 \end{array}\right\} \qquad (154)$$

Supplementary table of high probabilities:

$$\left.\begin{array}{l} d = 0,\ 0.01,\ 0.10,\ 0.25,\ 0.50,\ 0.75,\ 1,\ 1.5,\ 2,\ 3,\ 4,\ 5,\ 6,\ 8,\ 10,\ 20,\ 30,\ 50,\ 80,\ 120 \\ P = .99(.0005).9990(.0001).9999(.00001).99999(.000001).999999 \end{array}\right\} \qquad (155)$$

$P(R, d)$ Example

Suppose that a group of bomb impact points form a circular normal distribution centered at the origin with standard deviation $\sigma_x = \sigma_y = \sigma =$ 300 feet. If a point target is at a position given by h = 720 feet, k = 960 feet, what must the lethal radius $\bar{R}$ of the bomb be in order that the probability of destroying the target with a single bomb be $P = 0.60$?

Solution: $\sqrt{h^2 + k^2} = 1200,\ d = 1200/\sigma_x = 4$

Entering the $P(R, d)$ inverse table with $d = 4.0,\ P = 0.60,$ it is found that $R = \bar{R}/\sigma_x = 4.3740$. Hence lethal radius $\bar{R} = 4.3740\ \sigma_x = 1312$ feet approximately.

R = R(P,d) where probability P = P(R,d)

P\d	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90
0.01	0.141777	0.142132	0.143202	0.145003	0.147562	0.150917	0.155121	0.160239	0.166350	0.173553
0.02	0.201011	0.201514	0.203031	0.205584	0.209211	0.213966	0.219921	0.227166	0.235813	0.245997
0.03	0.246817	0.247434	0.249297	0.252491	0.256883	0.262718	0.270023	0.278907	0.289503	0.301971
0.04	0.285734	0.286449	0.288605	0.292243	0.297385	0.304136	0.312585	0.322855	0.335096	0.349489
0.05	0.320291	0.321093	0.323510	0.327575	0.333348	0.340911	0.350373	0.361868	0.375562	0.391649
0.06	0.351782	0.352663	0.355317	0.359781	0.366120	0.374421	0.384803	0.397411	0.412420	0.430037
0.07	0.380974	0.381928	0.384802	0.389636	0.396498	0.405483	0.416715	0.430349	0.446570	0.465593
0.08	0.408367	0.409389	0.412469	0.417650	0.425002	0.434627	0.446655	0.461248	0.478599	0.498930
0.09	0.434306	0.435393	0.438668	0.444177	0.451994	0.462224.	0.475003	0.490500	0.508913	0.530473
0.10	0.459044	0.460192	0.463655	0.469476	0.477735	0.488541	0.502034	0.518389	0.537810	0.560531
0.11	0.482771	0.483979	0.487620	0.493741	0.502424	0.513781	0.527957	0.545132	0.565513	0.589336
0.12	0.505635	0.506900	0.510713	0.517124	0.526214	0.538101	0.552934	0.570894	0.592194	0.617071
0.13	0.527754	0.529075	0.533054	0.539743	0.549228	0.561626	0.577092	0.595810	0.617993	0.643880
0.14	0.549223	0.550597	0.554738	0.561698	0.571565	0.584459	0.600537	0.619987	0.643022	0.669880
0.15	0.570121	0.571548	0.575846	0.583069	0.593307	0.606683	0.623356	0.643513	0.667372	0.695168
0.16	0.590514	0.591992	0.596443	0.603924	0.614523	0.628869	0.645619	0.666465	0.691122	0.719824
0.17	0.610458	0.611986	0.616588	0.624319	0.635272	0.649575	0.667389	0.688905	0.714338	0.743917
0.18	0.630001	0.631578	0.636327	0.644304	0.655603	0.670354	0.688718	0.710887	0.737075	0.767507
0.19	0.649186	0.650810	0.655703	0.663922	0.675560	0.690749	0.709652	0.732460	0.759383	0.790644
0.20	0.668047	0.669719	0.674754	0.683209	0.695181	0.710800	0.730231	0.753663	0.781305	0.813372
0.21	0.686618	0.688336	0.693511	0.702199	0.714499	0.730541	0.750489	0.774533	0.802877	0.835732
0.22	0.704927	0.706691	0.712003	0.720922	0.733544	0.750002	0.770459	0.795102	0.824135	0.857758
0.23	0.723000	0.724810	0.730257	0.739402	0.752342	0.769210	0.790167	0.815401	0.845107	0.879482
0.24	0.740860	0.742714	0.748295	0.757647	0.770918	0.788190	0.809640	0.835453	0.865821	0.900931
0.25	0.758528	0.760426	0.766140	0.775	0.789294	0.806964	0.828900	0.855284	0.886301	0.922132
0.26	0.776022	0.777964	0.783809	0.793615	0.807489	0.825553	0.847969	0.874914	0.906570	0.943107
0.27	0.793361	0.795346	0.801322	0.811348	0.825522	0.843975	0.866864	0.894363	0.926648	0.963877
0.28	0.810560	0.812588	0.818693	0.828934	0.843409	0.862248	0.885605	0.913650	0.946553	0.984464
0.29	0.827636	0.829706	0.835939	0.846393	0.861166	0.880387	0.904207	0.932792	0.966304	1.004884
0.30	0.844600	0.846714	0.853073	0.863740	0.878808	0.898407	0.922685	0.951804	0.985917	1.025154
0.31	0.861468	0.863624	0.870110	0.880986	0.896349	0.916322	0.941054	0.970700	1.005407	1.045292
0.32	0.878251	0.880448	0.887060	0.898146	0.913800	0.934146	0.959328	0.989496	1.024788	1.065310
0.33	0.894961	0.897200	0.903937	0.915231	0.931175	0.951891	0.977519	1.008204	1.044075	1.085225
0.34	0.911609	0.913890	0.920751	0.932252	0.948485	0.969569	0.995640	1.026836	1.063279	1.105048
0.35	0.928206	0.930528	0.937514	0.949221	0.965741	0.987190	1.013701	1.045405	1.082413	1.124793
0.36	0.944761	0.947125	0.954235	0.966148	0.982954	1.004767	1.031714	1.063921	1.101489	1.144472
0.37	0.961286	0.963691	0.970925	0.983043	1.000134	1.022309	1.049691	1.082397	1.120518	1.164097
0.38	0.977789	0.980235	0.987592	0.999915	1.017290	1.039826	1.067640	1.100842	1.139512	1.183679
0.39	0.994280	0.996767	1.004248	1.016775	1.034434	1.057329	1.085572	1.119267	1.158481	1.203229
0.40	1.010768	1.013296	1.020900	1.033631	1.051573	1.074827	1.103498	1.137682	1.177435	1.222757
0.41	1.027261	1.029831	1.037558	1.050494	1.068718	1.092329	1.121427	1.156097	1.196385	1.242275
0.42	1.043769	1.046380	1.054230	1.067370	1.085877	1.109845	1.139368	1.174521	1.215340	1.261793
0.43	1.060301	1.062953	1.070927	1.084271	1.103060	1.127384	1.157330	1.192965	1.234311	1.281321
0.44	1.076864	1.079558	1.087655	1.101204	1.120276	1.144955	1.175324	1.211439	1.253308	1.300869
0.45	1.093469	1.096204	1.104425	1.118178	1.137533	1.162568	1.193359	1.229950	1.272339	1.320447
0.46	1.110123	1.112899	1.121245	1.135203	1.154841	1.180232	1.211443	1.248510	1.291416	1.340065
0.47	1.126835	1.129653	1.138123	1.152288	1.172209	1.197956	1.229587	1.267128	1.310548	1.359734
0.48	1.143614	1.146474	1.155069	1.169440	1.189645	1.215748	1.247800	1.285814	1.329745	1.379463
0.49	1.160469	1.163372	1.172093	1.186670	1.207160	1.233620	1.266091	1.304577	1.349017	1.399264
0.50	1.177410	1.180355	1.189202	1.203987	1.224763	1.251580	1.284472	1.323428	1.368374	1.419145

R = R(P,d) where probability P = P(R,d)

P\d	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90
0.50	1.177410	1.180355	1.189202	1.203987	1.224763	1.251580	1.284472	1.323428	1.368374	1.419145
0.51	1.194445	1.197433	1.206406	1.221401	1.242463	1.269639	1.302950	1.342377	1.387827	1.439119
0.52	1.211585	1.214615	1.223716	1.238921	1.260271	1.287806	1.321538	1.361434	1.407386	1.459196
0.53	1.228839	1.231912	1.241142	1.256558	1.278197	1.306092	1.340245	1.380610	1.427063	1.479388
0.54	1.246217	1.249334	1.258693	1.274321	1.296251	1.324508	1.359083	1.399917	1.446869	1.499705
0.55	1.263731	1.266891	1.276380	1.292222	1.314446	1.343064	1.378063	1.419366	1.466816	1.520160
0.56	1.281390	1.284594	1.294215	1.310273	1.332789	1.361774	1.397197	1.438968	1.486916	1.540766
0.57	1.299208	1.302456	1.312209	1.328484	1.351297	1.380648	1.416496	1.458738	1.507181	1.561535
0.58	1.317194	1.320488	1.330374	1.346868	1.369979	1.399699	1.435975	1.478687	1.527625	1.582480
0.59	1.335364	1.338703	1.348724	1.365438	1.388850	1.418941	1.455646	1.498829	1.548263	1.603617
0.60	1.353729	1.357113	1.367271	1.384208	1.407923	1.438388	1.475524	1.519179	1.569108	1.624960
0.61	1.372304	1.375735	1.386030	1.403192	1.427214	1.458055	1.495624	1.539753	1.590176	1.646524
0.62	1.391103	1.394581	1.405016	1.422406	1.446736	1.477956	1.515962	1.560566	1.611484	1.668327
0.63	1.410143	1.413669	1.424245	1.441865	1.466507	1.498110	1.536554	1.581635	1.633049	1.690385
0.64	1.429441	1.433015	1.443733	1.461587	1.486544	1.518534	1.557420	1.602980	1.654889	1.712719
0.65	1.449015	1.452637	1.463501	1.481590	1.506867	1.539246	1.578577	1.624619	1.677025	1.735347
0.66	1.468884	1.472556	1.483566	1.501895	1.527494	1.560268	1.600047	1.646573	1.699478	1.758291
0.67	1.489069	1.492791	1.503950	1.522522	1.548449	1.581620	1.621853	1.668866	1.722270	1.781575
0.68	1.509592	1.513365	1.524677	1.543495	1.569753	1.603328	1.644018	1.691521	1.745427	1.805223
0.69	1.530479	1.534304	1.545770	1.564838	1.591433	1.625417	1.666568	1.714565	1.768974	1.829262
0.70	1.551756	1.555634	1.567256	1.586590	1.613516	1.647914	1.689532	1.738026	1.792942	1.853723
0.71	1.573451	1.577384	1.589166	1.608749	1.636033	1.670850	1.712940	1.761937	1.817361	1.878636
0.72	1.595597	1.599585	1.611531	1.631378	1.659015	1.694258	1.736827	1.786331	1.842267	1.904036
0.73	1.618229	1.622273	1.634386	1.654502	1.682500	1.718176	1.761229	1.811245	1.867697	1.929963
0.74	1.641386	1.645487	1.657770	1.678162	1.706527	1.742643	1.786189	1.836722	1.893693	1.956458
0.75	1.665109	1.669270	1.681727	1.702400	1.731140	1.767705	1.811750	1.862808	1.920302	1.983568
0.76	1.689447	1.693669	1.706305	1.727265	1.756389	1.793412	1.837964	1.889553	1.947576	2.011346
0.77	1.714454	1.718737	1.731557	1.752814	1.782328	1.819818	1.864887	1.917015	1.975572	2.039850
0.78	1.740188	1.744536	1.757545	1.779105	1.809021	1.846989	1.892584	1.945258	2.004356	2.069145
0.79	1.766719	1.771133	1.784336	1.806208	1.836527	1.874993	1.921125	1.974356	2.034001	2.099306
0.80	1.794123	1.798604	1.812008	1.834203	1.864955	1.903913	1.950594	2.004391	2.064591	2.130417
0.81	1.822488	1.827040	1.840652	1.863179	1.894368	1.933840	1.981084	2.035458	2.096221	2.162574
0.82	1.851917	1.856543	1.870369	1.893240	1.924880	1.964882	2.012702	2.067666	2.129003	2.195889
0.83	1.882529	1.887230	1.901280	1.924508	1.956614	1.997164	2.045576	2.101143	2.163064	2.230491
0.84	1.914462	1.919243	1.933526	1.957124	1.989715	2.030829	2.079852	2.136038	2.198554	2.266532
0.85	1.947881	1.952745	1.967271	1.991257	2.024352	2.066052	2.115704	2.172526	2.235652	2.304191
0.86	1.982984	1.987936	2.002717	2.027108	2.060729	2.103039	2.153343	2.210820	2.274572	2.343683
0.87	2.020010	2.025054	2.040105	2.064921	2.099094	2.142040	2.193022	2.251176	2.315571	2.385267
0.88	2.059254	2.064395	2.079731	2.104997	2.139749	2.183363	2.235051	2.293908	2.358966	2.429264
0.89	2.101083	2.106328	2.121967	2.147711	2.183077	2.227392	2.279820	2.339409	2.405155	2.476073
0.90	2.145966	2.151322	2.167286	2.193540	2.229559	2.274618	2.327825	2.388180	2.454641	2.526202
0.91	2.194514	2.199991	2.216304	2.243108	2.279827	2.325679	2.379712	2.440874	2.508083	2.580312
0.92	2.247545	2.253153	2.269849	2.297249	2.334726	2.381429	2.436345	2.498362	2.566361	2.639290
0.93	2.306192	2.311945	2.329063	2.357119	2.395424	2.443054	2.498921	2.561853	2.630691	2.704360
0.94	2.372092	2.378009	2.395599	2.424388	2.463611	2.512261	2.569167	2.633093	2.702832	2.777293
0.95	2.447747	2.453851	2.471982	2.501605	2.541866	2.591661	2.649722	2.714741	2.785466	2.860784
0.96	2.537272	2.543598	2.562366	2.592967	2.634437	2.685548	2.744926	2.811177	2.883002	2.959272
0.97	2.648229	2.654829	2.674383	2.706181	2.749116	2.801806	2.862740	2.930430	3.003526	3.080886
0.98	2.797150	2.804117	2.824721	2.858100	2.902944	2.957659	3.020557	3.090036	3.164692	3.243378
0.99	3.034854	3.042407	3.064668	3.100510	3.148267	3.205999	3.271756	3.343783	3.420624	3.501145

R = R(P,d) where probability P = P(R,d)

P\d	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90
0.01	0.181965	0.191725	0.202998	0.215975	0.230882	0.247976	0.267554	0.289951	0.315536	0.344711
0.02	0.257876	0.271640	0.287506	0.305727	0.326587	0.350406	0.377533	0.408340	0.443205	0.482493
0.03	0.316500	0.333310	0.352651	0.374808	0.400094	0.428849	0.461427	0.498180	0.539435	0.585460
0.04	0.366243	0.385599	0.407828	0.433234	0.462139	0.494881	0.531796	0.573191	0.619318	0.670344
0.05	0.410355	0.431935	0.456675	0.484883	0.516882	0.552995	0.593523	0.638720	0.688759	0.743706
0.06	0.450500	0.474075	0.501053	0.531743	0.566458	0.605498	0.649123	0.697528	0.750809	0.808940
0.07	0.487666	0.513060	0.542069	0.574996	0.612138	0.653766	0.700096	0.751263	0.807289	0.868072
0.08	0.522496	0.549570	0.580443	0.615411	0.654749	0.698696	0.747423	0.801003	0.859395	0.922429
0.09	0.555435	0.584074	0.616676	0.653523	0.694867	0.740914	0.791785	0.847501	0.907958	0.972931
0.10	0.586808	0.616915	0.651132	0.689721	0.732913	0.780875	0.833683	0.891305	0.953585	1.020250
0.11	0.616860	0.648354	0.684085	0.724302	0.769205	0.818925	0.873495	0.932833	0.996736	1.064892
0.12	0.645782	0.678589	0.715750	0.757492	0.803988	0.855332	0.911513	0.972406	1.037766	1.107249
0.13	0.673725	0.707783	0.746298	0.789476	0.837461	0.890311	0.947975	1.010285	1.076961	1.147633
0.14	0.700812	0.736065	0.775866	0.820401	0.869783	0.924036	0.983069	1.046678	1.114550	1.186295
0.15	0.727145	0.763541	0.804569	0.850389	0.901088	0.956651	1.016955	1.081759	1.150724	1.223443
0.16	0.752808	0.790303	0.832502	0.879544	0.931485	0.988278	1.049764	1.115672	1.185641	1.259248
0.17	0.777875	0.816426	0.859747	0.907962	0.961069	1.019018	1.081608	1.148540	1.219434	1.293857
0.18	0.802406	0.841975	0.886373	0.935689	0.989921	1.048960	1.112583	1.180469	1.252219	1.327394
0.19	0.826456	0.867008	0.912441	0.962819	1.018112	1.078180	1.142774	1.211549	1.284094	1.359964
0.20	0.850071	0.891574	0.938003	0.989398	1.045701	1.106744	1.172252	1.241860	1.315146	1.391661
0.21	0.873292	0.915717	0.963106	1.015477	1.072744	1.134711	1.201081	1.271472	1.345450	1.422566
0.22	0.896157	0.939475	0.987792	1.041100	1.099288	1.162134	1.229319	1.300445	1.375072	1.452750
0.23	0.918698	0.962883	1.012096	1.066306	1.125375	1.189059	1.257015	1.328835	1.404072	1.482276
0.24	0.940944	0.985972	1.036053	1.091132	1.151046	1.215527	1.284216	1.356692	1.432502	1.511201
0.25	0.962923	1.008771	1.059693	1.115609	1.176334	1.241576	1.310962	1.384058	1.460411	1.539575
0.26	0.984659	1.031306	1.083043	1.139767	1.201270	1.267242	1.337290	1.410975	1.487840	1.567445
0.27	1.006175	1.053599	1.106127	1.163633	1.225885	1.292554	1.363235	1.437479	1.514831	1.594851
0.28	1.027490	1.075674	1.128970	1.187232	1.250205	1.317542	1.388827	1.463604	1.541417	1.621832
0.29	1.048624	1.097549	1.151593	1.210586	1.274254	1.342233	1.414095	1.489380	1.567631	1.648422
0.30	1.069594	1.119243	1.174014	1.233716	1.298055	1.366651	1.439065	1.514835	1.593505	1.674653
0.31	1.090418	1.140775	1.196254	1.256643	1.321629	1.390818	1.463762	1.539996	1.619065	1.700554
0.32	1.111111	1.162160	1.218329	1.279385	1.344997	1.414757	1.488210	1.564887	1.644338	1.726152
0.33	1.131688	1.183414	1.240256	1.301959	1.368177	1.438487	1.512429	1.589531	1.669348	1.751473
0.34	1.152162	1.204552	1.262049	1.324382	1.391186	1.462027	1.536439	1.613950	1.694117	1.776540
0.35	1.172547	1.225587	1.283725	1.346670	1.414041	1.485396	1.560260	1.638164	1.718667	1.801376
0.36	1.192856	1.246533	1.305297	1.368837	1.436759	1.508609	1.583910	1.662191	1.743017	1.826002
0.37	1.213100	1.267403	1.326778	1.390898	1.459354	1.531683	1.607405	1.686050	1.767188	1.850437
0.38	1.233292	1.288208	1.348181	1.412866	1.481841	1.554635	1.630763	1.709759	1.791196	1.874700
0.39	1.253443	1.308962	1.369520	1.434755	1.504234	1.577477	1.653999	1.733334	1.815060	1.898810
0.40	1.273564	1.329675	1.390805	1.456578	1.526547	1.600226	1.677128	1.756790	1.838795	1.922783
0.41	1.293667	1.350359	1.412050	1.478347	1.548792	1.622895	1.700165	1.780143	1.862418	1.946636
0.42	1.313761	1.371025	1.433266	1.500075	1.570984	1.645497	1.723124	1.803409	1.885945	1.970384
0.43	1.333858	1.391684	1.454463	1.521773	1.593134	1.668046	1.746019	1.826601	1.909390	1.994045
0.44	1.353967	1.412348	1.475655	1.543453	1.615254	1.690555	1.768864	1.849734	1.932768	2.017631
0.45	1.374100	1.433025	1.496850	1.565127	1.637358	1.713036	1.791672	1.872821	1.956093	2.041159
0.46	1.394267	1.453728	1.518062	1.586806	1.659457	1.735502	1.814456	1.895876	1.979380	2.064643
0.47	1.414477	1.474468	1.539301	1.608503	1.681562	1.757967	1.837229	1.918914	2.002642	2.088096
0.48	1.434743	1.495254	1.560577	1.630228	1.703688	1.780441	1.860005	1.941946	2.025893	2.111534
0.49	1.455073	1.516098	1.581904	1.651994	1.725844	1.802939	1.882795	1.964987	2.049147	2.134969
0.50	1.475479	1.537011	1.603291	1.673812	1.748045	1.825472	1.905614	1.988049	2.072417	2.158417

R = R(P,d) where probability P = P(R,d)

P\d	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90
0.50	1.475479	1.537011	1.603291	1.673812	1.748045	1.825472	1.905614	1.988049	2.072417	2.158417
0.51	1.495972	1.558004	1.624750	1.695694	1.770301	1.848053	1.928474	2.011147	2.095717	2.181890
0.52	1.516563	1.579089	1.646294	1.717652	1.792625	1.870695	1.951389	2.034294	2.119062	2.205404
0.53	1.537264	1.600277	1.667934	1.739699	1.815031	1.893412	1.974371	2.057504	2.142465	2.228972
0.54	1.558086	1.621580	1.689682	1.761848	1.837531	1.916216	1.997436	2.080790	2.165940	2.252608
0.55	1.579042	1.643012	1.711552	1.784111	1.860139	1.939121	2.020596	2.104167	2.189502	2.276329
0.56	1.600144	1.664584	1.733556	1.806502	1.882868	1.962142	2.043866	2.127649	2.213166	2.300148
0.57	1.621405	1.686310	1.755709	1.829034	1.905733	1.985293	2.067262	2.151253	2.236947	2.324081
0.58	1.642840	1.708205	1.778024	1.851724	1.928749	2.008589	2.090797	2.174993	2.260861	2.348145
0.59	1.664462	1.730283	1.800516	1.874584	1.951930	2.032046	2.114489	2.198885	2.284924	2.372355
0.60	1.686286	1.752559	1.823202	1.897633	1.975294	2.055680	2.138354	2.222947	2.309154	2.396729
0.61	1.708330	1.775049	1.846097	1.920885	1.998856	2.079509	2.162410	2.247195	2.333568	2.421285
0.62	1.730608	1.797770	1.869218	1.944359	2.022636	2.103550	2.186674	2.271650	2.358184	2.446042
0.63	1.753140	1.820742	1.892585	1.968074	2.046651	2.127823	2.211166	2.296329	2.383024	2.471019
0.64	1.775945	1.843982	1.916216	1.992049	2.070923	2.152348	2.235907	2.321254	2.408107	2.496238
0.65	1.799042	1.867511	1.940133	2.016304	2.095471	2.177146	2.260918	2.346446	2.433455	2.521720
0.66	1.822453	1.891352	1.964357	2.040864	2.120319	2.202241	2.286222	2.371930	2.459092	2.547490
0.67	1.846203	1.915527	1.988913	2.065751	2.145491	2.227656	2.311845	2.397729	2.485043	2.573572
0.68	1.870315	1.940063	2.013825	2.090991	2.171013	2.253418	2.337812	2.423871	2.511335	2.599994
0.69	1.894817	1.964987	2.039123	2.116613	2.196914	2.279553	2.364152	2.450384	2.537997	2.626784
0.70	1.919739	1.990329	2.064835	2.142647	2.223224	2.306101	2.390897	2.477300	2.565060	2.653975
0.71	1.945114	2.016121	2.090995	2.169127	2.249976	2.333086	2.418080	2.504652	2.592558	2.681599
0.72	1.970975	2.042398	2.117639	2.196087	2.277206	2.360547	2.445737	2.532477	2.620528	2.709695
0.73	1.997363	2.069201	2.144805	2.223567	2.304955	2.388524	2.473909	2.560816	2.649011	2.738303
0.74	2.024319	2.096571	2.172538	2.251612	2.333267	2.417062	2.502640	2.589714	2.678051	2.767468
0.75	2.051892	2.124556	2.200884	2.280269	2.362188	2.446209	2.531980	2.619218	2.707698	2.797239
0.76	2.080132	2.153210	2.229898	2.309592	2.391775	2.476020	2.561982	2.649384	2.738006	2.827671
0.77	2.109101	2.182591	2.259639	2.339641	2.422086	2.506554	2.592707	2.680273	2.769036	2.858824
0.78	2.138863	2.212767	2.290173	2.370482	2.453189	2.537880	2.624223	2.711952	2.800857	2.890769
0.79	2.169492	2.243811	2.321576	2.402192	2.485160	2.570074	2.656606	2.744499	2.833546	2.923582
0.80	2.201075	2.275810	2.353935	2.434858	2.518087	2.603222	2.689945	2.778001	2.867190	2.957350
0.81	2.233708	2.308861	2.387346	2.468577	2.552067	2.637425	2.724338	2.812558	2.901890	2.992175
0.82	2.267504	2.343077	2.421924	2.503463	2.587215	2.672796	2.759900	2.848285	2.937761	3.028171
0.83	2.302591	2.378588	2.457799	2.539648	2.623664	2.709469	2.796765	2.885316	2.974936	3.065474
0.84	2.339123	2.415548	2.495126	2.577287	2.661567	2.747598	2.835088	2.923807	3.013573	3.104239
0.85	2.377281	2.454139	2.534087	2.616563	2.701110	2.787369	2.875055	2.963943	3.053856	3.144652
0.86	2.417280	2.494577	2.574900	2.657694	2.742512	2.829001	2.916885	3.005945	3.096009	3.186937
0.87	2.459381	2.537125	2.617829	2.700945	2.786037	2.872761	2.960846	3.050081	3.140297	3.231360
0.88	2.503907	2.582106	2.663197	2.746642	2.832013	2.918975	3.007266	3.096679	3.187052	3.278252
0.89	2.551259	2.629924	2.711411	2.795192	2.880848	2.968053	3.056554	3.146151	3.236684	3.328026
0.90	2.601947	2.681092	2.762985	2.847110	2.933059	3.020515	3.109232	3.199017	3.289716	3.381204
0.91	2.656638	2.736278	2.818591	2.903071	2.989322	3.077037	3.165978	3.255959	3.346829	3.438470
0.92	2.716222	2.796377	2.879126	2.963975	3.050540	3.138525	3.227699	3.317883	3.408933	3.500733
0.93	2.781929	2.862625	2.945831	3.031067	3.117962	3.206230	3.295650	3.386049	3.477288	3.569257
0.94	2.855539	2.936809	3.020499	3.106145	3.193389	3.281958	3.371640	3.462268	3.553710	3.645858
0.95	2.939763	3.021650	3.105861	3.191948	3.279569	3.368463	3.458428	3.549305	3.640967	3.733311
0.96	3.039057	3.121624	3.206407	3.292980	3.381017	3.470270	3.560548	3.651701	3.743607	3.836169
0.97	3.161592	3.244932	3.330367	3.417493	3.506004	3.595668	3.686306	3.777775	3.869963	3.962777
0.98	3.325196	3.409468	3.495690	3.583484	3.672571	3.762735	3.853812	3.945670	4.038203	4.131327
0.99	3.584494	3.670048	3.757352	3.846071	3.935956	4.026818	4.118509	4.210912	4.303933	4.397494

R = R(P,d) where probability P = P(R,d)

P\d	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90
0.01	0.377894	0.415495	0.457890	0.505374	0.558115	0.616121	0.679214	0.747049	0.819150	0.894974
0.02	0.526522	0.575528	0.629625	0.688777	0.752786	0.821307	0.893888	0.970020	1.049192	1.130926
0.03	0.636434	0.692409	0.753291	0.818838	0.888680	0.962361	1.039387	1.119271	1.201568	1.285891
0.04	0.726312	0.787128	0.852558	0.922243	0.995741	1.072573	1.152262	1.234371	1.318518	1.404380
0.05	0.803492	0.867913	0.936642	1.009259	1.085298	1.164290	1.245791	1.329412	1.414818	1.501733
0.06	0.871762	0.938991	1.010241	1.085063	1.162991	1.243575	1.326409	1.411143	1.497480	1.585180
0.07	0.933380	1.002869	1.076118	1.152670	1.232067	1.313887	1.397755	1.483353	1.570418	1.658734
0.08	0.989815	1.061169	1.136051	1.214002	1.294583	1.377397	1.462097	1.548395	1.636050	1.724868
0.09	1.042086	1.115010	1.191254	1.270367	1.351928	1.435563	1.520954	1.607833	1.695982	1.785221
0.10	1.090931	1.165199	1.242600	1.322606	1.405086	1.489416	1.575392	1.662765	1.751335	1.840936
0.11	1.136907	1.212339	1.290739	1.371681	1.454782	1.539712	1.626192	1.713993	1.802929	1.892845
0.12	1.180441	1.256894	1.336167	1.417847	1.501569	1.587021	1.673943	1.762121	1.851379	1.941574
0.13	1.221872	1.299231	1.379275	1.461606	1.545876	1.631790	1.719104	1.807616	1.897162	1.987605
0.14	1.261474	1.339642	1.420373	1.503284	1.588042	1.674370	1.762034	1.850847	1.940652	2.031320
0.15	1.299471	1.378367	1.459716	1.543147	1.628346	1.715045	1.803027	1.892112	1.982152	2.073025
0.16	1.336049	1.415605	1.497512	1.581416	1.667013	1.754050	1.842321	1.931654	2.021909	2.112970
0.17	1.371363	1.451521	1.533937	1.618271	1.704232	1.791579	1.880114	1.969675	2.060128	2.151362
0.18	1.405547	1.486256	1.569140	1.653868	1.740162	1.827794	1.916573	2.006345	2.096981	2.188376
0.19	1.438715	1.519932	1.603245	1.688337	1.774940	1.862834	1.951840	2.041807	2.132614	2.224159
0.20	1.470965	1.552653	1.636363	1.721791	1.808680	1.896820	1.986035	2.076186	2.167152	2.258836
0.21	1.502385	1.584508	1.668589	1.754330	1.841485	1.929852	2.019265	2.109586	2.200702	2.292518
0.22	1.533048	1.615579	1.700004	1.786047	1.873442	1.962023	2.051620	2.142102	2.233359	2.325299
0.23	1.563023	1.645935	1.730682	1.816989	1.904628	1.993410	2.083181	2.173815	2.265205	2.357262
0.24	1.592370	1.675639	1.760689	1.847253	1.935112	2.024083	2.114019	2.204796	2.296312	2.388482
0.25	1.621141	1.704746	1.790082	1.876889	1.964955	2.054106	2.144198	2.235111	2.326747	2.419022
0.26	1.649385	1.733308	1.818912	1.905949	1.994212	2.083533	2.173772	2.264815	2.356565	2.448941
0.27	1.677146	1.761368	1.847228	1.934482	2.022932	2.112415	2.202795	2.293961	2.385820	2.478293
0.28	1.704462	1.788969	1.875071	1.962532	2.051160	2.140797	2.231311	2.322595	2.414559	2.507124
0.29	1.731371	1.816149	1.902480	1.990149	2.078936	2.168720	2.259363	2.350760	2.442823	2.535477
0.30	1.757905	1.842940	1.929491	2.017338	2.106297	2.196222	2.286988	2.378494	2.470652	2.563392
0.31	1.784095	1.869376	1.956137	2.044163	2.133278	2.223337	2.314222	2.405831	2.498083	2.590904
0.32	1.809970	1.895486	1.982447	2.070645	2.159909	2.250098	2.341096	2.432806	2.525146	2.618047
0.33	1.835555	1.921296	2.008449	2.096813	2.186220	2.276534	2.367641	2.459448	2.551874	2.644851
0.34	1.860876	1.946832	2.034170	2.122693	2.212237	2.302671	2.393885	2.485785	2.578293	2.671345
0.35	1.885955	1.972119	2.059634	2.148309	2.237987	2.328537	2.419852	2.511842	2.604431	2.697554
0.36	1.910814	1.997178	2.084864	2.173686	2.263492	2.354154	2.445568	2.537646	2.630313	2.723505
0.37	1.935474	2.022030	2.109881	2.198845	2.288775	2.379546	2.471055	2.563217	2.655960	2.749220
0.38	1.959954	2.046695	2.134705	2.223808	2.313857	2.404733	2.496335	2.588580	2.681395	2.774721
0.39	1.984273	2.071193	2.159357	2.248592	2.338758	2.429735	2.521428	2.613752	2.706639	2.800029
0.40	2.008448	2.095541	2.183854	2.273218	2.363497	2.454573	2.546353	2.638755	2.731712	2.825164
0.41	2.032497	2.119757	2.208214	2.297704	2.388092	2.479265	2.571130	2.663608	2.756632	2.850144
0.42	2.056435	2.143857	2.232455	2.322066	2.412560	2.503827	2.595775	2.688327	2.781417	2.874989
0.43	2.080279	2.167859	2.256592	2.346322	2.436920	2.528278	2.620307	2.712931	2.806085	2.899715
0.44	2.104044	2.191777	2.280642	2.370488	2.461186	2.552633	2.644741	2.737435	2.830653	2.924339
0.45	2.127745	2.215627	2.304621	2.394579	2.485376	2.576909	2.669094	2.761858	2.855137	2.948879
0.46	2.151397	2.239424	2.328543	2.418610	2.509503	2.601122	2.693383	2.786213	2.879553	2.973349
0.47	2.175014	2.263182	2.352424	2.442598	2.533585	2.625287	2.717621	2.810518	2.903916	2.997766
0.48	2.198612	2.286917	2.376279	2.466557	2.557636	2.649419	2.741825	2.834786	2.928243	3.022145
0.49	2.222203	2.310642	2.400121	2.490501	2.581670	2.673533	2.766010	2.859035	2.952548	3.046501
0.50	2.245802	2.334373	2.423966	2.514446	2.605703	2.697644	2.790191	2.883277	2.976847	3.070851

R = R(P,d) where probability P = P(R,d)

P\d	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90
0.50	2.245802	2.334873	2.423966	2.514446	2.605703	2.697644	2.790191	2.883277	2.976847	3.070851
0.51	2.269424	2.358124	2.447828	2.538406	2.629749	2.721767	2.814382	2.907530	3.001154	3.095208
0.52	2.293083	2.381908	2.471722	2.562396	2.653824	2.745917	2.838599	2.931807	3.025486	3.119588
0.53	2.316793	2.405741	2.495662	2.586441	2.677942	2.770108	2.862857	2.956124	3.049856	3.144006
0.54	2.340569	2.429638	2.519664	2.610575	2.702118	2.794357	2.887171	2.980496	3.074281	3.168479
0.55	2.364426	2.453613	2.543743	2.634695	2.726368	2.818679	2.911556	3.004939	3.098775	3.193020
0.56	2.388379	2.477682	2.567913	2.658955	2.750707	2.843089	2.936029	3.029469	3.123356	3.217647
0.57	2.412443	2.501861	2.592192	2.683372	2.775152	2.867603	2.960606	3.054101	3.148039	3.242376
0.58	2.436636	2.526166	2.616595	2.707811	2.799719	2.892239	2.985303	3.078853	3.172841	3.267223
0.59	2.460973	2.550613	2.641140	2.732441	2.824425	2.917012	3.010137	3.103742	3.197779	3.292206
0.60	2.485472	2.575221	2.665843	2.757299	2.849288	2.941942	3.035126	3.128786	3.222872	3.317342
0.61	2.510151	2.600007	2.690724	2.782193	2.874326	2.967046	3.060290	3.154003	3.248137	3.342652
0.62	2.535029	2.624991	2.715801	2.807353	2.899558	2.992344	3.085647	3.179413	3.273595	3.368153
0.63	2.560126	2.650193	2.741094	2.832727	2.925006	3.017856	3.111217	3.205035	3.299265	3.393866
0.64	2.585463	2.675633	2.766626	2.858339	2.950689	3.043604	3.137023	3.230893	3.325170	3.419814
0.65	2.611062	2.701335	2.792417	2.884210	2.976632	3.069610	3.163086	3.257008	3.351332	3.446019
0.66	2.636947	2.727321	2.818493	2.910365	3.002857	3.095898	3.189431	3.283405	3.377775	3.472504
0.67	2.663144	2.753617	2.844878	2.936829	3.029390	3.122495	3.216084	3.310109	3.404526	3.499297
0.68	2.689679	2.780252	2.871600	2.963629	3.056260	3.149427	3.243073	3.337148	3.431611	3.526424
0.69	2.716581	2.807253	2.898688	2.990794	3.083495	3.176724	3.270426	3.364552	3.459061	3.553916
0.70	2.743883	2.834652	2.926174	3.018358	3.111127	3.204418	3.298176	3.392352	3.486907	3.581804
0.71	2.771618	2.862485	2.954093	3.046353	3.139191	3.232544	3.326357	3.420584	3.515185	3.610124
0.72	2.799824	2.890788	2.982481	3.074818	3.167725	3.261139	3.355008	3.449285	3.543932	3.638912
0.73	2.828541	2.919601	3.011381	3.103794	3.196769	3.290245	3.384169	3.478497	3.573189	3.668212
0.74	2.857815	2.948971	3.040836	3.133325	3.226368	3.319906	3.413886	3.508264	3.603002	3.698067
0.75	2.887695	2.978947	3.070897	3.163462	3.256574	3.350173	3.444209	3.538638	3.633422	3.728528
0.76	2.918235	3.009583	3.101619	3.194260	3.287440	3.381101	3.475193	3.569672	3.664503	3.759651
0.77	2.949498	3.040942	3.133063	3.225781	3.319030	3.412752	3.506900	3.601431	3.696307	3.791498
0.78	2.981551	3.073092	3.165298	3.258093	3.351411	3.445196	3.539400	3.633981	3.728905	3.824138
0.79	3.014473	3.106110	3.198402	3.291274	3.384661	3.478509	3.572770	3.667403	3.762374	3.857650
0.80	3.048351	3.140085	3.232454	3.325414	3.418871	3.512781	3.607099	3.701785	3.796803	3.892123
0.81	3.083286	3.175118	3.267584	3.360612	3.454139	3.548114	3.642489	3.737228	3.832294	3.927658
0.82	3.119393	3.211324	3.303878	3.396995	3.490584	3.584622	3.679057	3.773848	3.868963	3.964372
0.83	3.156808	3.248838	3.341481	3.434668	3.528339	3.622443	3.716937	3.811782	3.906947	4.002401
0.84	3.195686	3.287817	3.380551	3.473819	3.567563	3.661734	3.756288	3.851188	3.946403	4.041903
0.85	3.236215	3.328449	3.421274	3.514625	3.608443	3.702681	3.797297	3.892254	3.987520	4.083067
0.86	3.278616	3.370954	3.463873	3.557308	3.651203	3.745510	3.840188	3.935202	4.030521	4.126116
0.87	3.323159	3.415604	3.508619	3.602139	3.696112	3.790490	3.885233	3.980306	4.075678	4.171323
0.88	3.370174	3.462728	3.555841	3.649460	3.743503	3.837954	3.932763	4.027896	4.123324	4.219020
0.89	3.420074	3.512740	3.605954	3.699655	3.793790	3.888316	3.983194	4.078390	4.173875	4.269624
0.90	3.473382	3.566166	3.659484	3.753280	3.847501	3.942105	4.037054	4.132315	4.227860	4.323664
0.91	3.530783	3.623688	3.717116	3.811010	3.905321	4.000006	4.095029	4.190359	4.285966	4.381828
0.92	3.593189	3.686721	3.779764	3.873762	3.968167	4.062938	4.158040	4.253441	4.349115	4.445037
0.93	3.661862	3.755029	3.848694	3.942802	4.037307	4.132170	4.227355	4.322833	4.418577	4.514564
0.94	3.738625	3.831937	3.925732	4.019959	4.114572	4.209532	4.304808	4.400368	4.496189	4.592246
0.95	3.826253	3.919723	4.013661	4.108017	4.202747	4.297816	4.393190	4.488841	4.584745	4.680879
0.96	3.929307	4.022953	4.117051	4.211552	4.306415	4.401604	4.497089	4.592842	4.688840	4.785061
0.97	4.056141	4.149992	4.244274	4.338944	4.433960	4.529291	4.624905	4.720777	4.816884	4.913207
0.98	4.224970	4.319073	4.413584	4.508462	4.603670	4.699175	4.794950	4.890970	4.987215	5.083665
0.99	4.491533	4.585994	4.680832	4.776008	4.871488	4.967244	5.063250	5.159484	5.255927	5.352560

R = R(P,d) where probability P = P(R,d)

P\d	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90
0.01	0.973968	1.055621	1.139486	1.225189	1.312428	1.400959	1.490588	1.581159	1.672544	1.764638
0.02	1.214806	1.300481	1.387664	1.476123	1.565670	1.656153	1.747448	1.839452	1.932082	2.025263
0.03	1.371916	1.459377	1.548058	1.637795	1.728414	1.819829	1.911933	2.004645	2.097895	2.191626
0.04	1.491690	1.580234	1.669834	1.760347	1.851656	1.943662	2.036283	2.129450	2.223104	2.317195
0.05	1.589932	1.679229	1.769475	1.860546	1.952340	2.044771	2.137766	2.231265	2.325214	2.419568
0.06	1.674044	1.763910	1.854647	1.946144	2.038311	2.131070	2.224355	2.318112	2.412292	2.506853
0.07	1.748123	1.838442	1.929570	2.021410	2.113877	2.206901	2.300423	2.394390	2.488759	2.583489
0.08	1.814689	1.905380	1.996832	2.088956	2.181674	2.274920	2.368639	2.462784	2.557311	2.652184
0.09	1.875404	1.966410	2.058138	2.150504	2.243436	2.336872	2.430762	2.525058	2.619722	2.714719
0.10	1.931431	2.022709	2.114676	2.207252	2.300370	2.393973	2.488010	2.582440	2.677224	2.772330
0.11	1.983614	2.075130	2.167307	2.260068	2.353351	2.447101	2.541270	2.635819	2.730710	2.825913
0.12	2.032585	2.124414	2.216677	2.309604	2.403034	2.496916	2.591204	2.685859	2.780847	2.876137
0.13	2.078833	2.170753	2.263285	2.356341	2.449925	2.543926	2.638321	2.733073	2.828149	2.923519
0.14	2.122745	2.214838	2.307523	2.400735	2.494420	2.588531	2.683024	2.777865	2.873020	2.968464
0.15	2.164629	2.256880	2.349705	2.443043	2.536840	2.631050	2.725634	2.820556	2.915786	3.011297
0.16	2.204739	2.297135	2.390090	2.483543	2.577443	2.671746	2.766414	2.861412	2.956711	3.052285
0.17	2.243284	2.335815	2.428889	2.522449	2.616445	2.710835	2.805580	2.900649	2.996013	3.091645
0.18	2.280439	2.373096	2.466282	2.559941	2.654027	2.748498	2.843316	2.938452	3.033875	3.129563
0.19	2.316354	2.409128	2.502418	2.596172	2.690341	2.784888	2.879775	2.974973	3.070454	3.166193
0.20	2.351156	2.444040	2.537428	2.631270	2.725519	2.820137	2.915089	3.010345	3.105880	3.201668
0.21	2.384954	2.477942	2.571423	2.665348	2.759672	2.854357	2.949371	3.044683	3.140268	3.236103
0.22	2.417845	2.510931	2.604500	2.698503	2.792898	2.887648	2.982720	3.078085	3.173719	3.269598
0.23	2.449913	2.543091	2.636743	2.730821	2.825284	2.920095	3.015222	3.110638	3.206318	3.302239
0.24	2.481231	2.574498	2.668229	2.762378	2.856905	2.951774	3.046955	3.142419	3.238143	3.334105
0.25	2.511865	2.605216	2.699023	2.793241	2.887829	2.982754	3.077985	3.173496	3.269262	3.365262
0.26	2.541875	2.635306	2.729186	2.823468	2.918115	3.013094	3.108374	3.203928	3.299735	3.395773
0.27	2.571312	2.664821	2.758770	2.853114	2.947818	3.042848	3.138175	3.233772	3.329618	3.425692
0.28	2.600226	2.693808	2.787823	2.882228	2.976986	3.072066	3.167437	3.263076	3.358959	3.455068
0.29	2.628658	2.722312	2.816391	2.910854	3.005664	3.100791	3.196206	3.291884	3.387804	3.483946
0.30	2.656649	2.750371	2.844512	2.939030	3.033891	3.129064	3.224521	3.320238	3.416193	3.512367
0.31	2.684235	2.778023	2.872223	2.966795	3.061705	3.156922	3.252420	3.348174	3.444163	3.540368
0.32	2.711449	2.805301	2.899558	2.994182	3.089140	3.184400	3.279937	3.375727	3.471749	3.567985
0.33	2.738321	2.832235	2.926548	3.021223	3.116226	3.211528	3.307103	3.402928	3.498982	3.595247
0.34	2.764882	2.858855	2.953222	3.047946	3.142993	3.238335	3.333947	3.429806	3.525892	3.622186
0.35	2.791156	2.885187	2.979606	3.074378	3.169468	3.264850	3.360498	3.456390	3.552506	3.648828
0.36	2.817169	2.911256	3.005727	3.100544	3.195677	3.291097	3.386780	3.482704	3.578850	3.675199
0.37	2.842944	2.937087	3.031606	3.126469	3.221642	3.317100	3.412817	3.508773	3.604947	3.701323
0.38	2.868504	2.962700	3.057268	3.152174	3.247388	3.342882	3.438632	3.534618	3.630821	3.727223
0.39	2.893870	2.988117	3.082732	3.177681	3.272934	3.368463	3.464247	3.560263	3.656493	3.752920
0.40	2.919061	3.013359	3.108020	3.203010	3.298301	3.393865	3.489681	3.585726	3.681983	3.778436
0.41	2.944096	3.038443	3.133149	3.228181	3.323508	3.419107	3.514953	3.611027	3.707311	3.803788
0.42	2.968994	3.063390	3.158140	3.253211	3.348575	3.444207	3.540084	3.636186	3.732496	3.828996
0.43	2.993772	3.088215	3.183008	3.278118	3.373518	3.469183	3.565090	3.661220	3.757554	3.854079
0.44	3.018448	3.112937	3.207772	3.302920	3.398355	3.494052	3.589988	3.686145	3.782505	3.879053
0.45	3.043037	3.137572	3.232448	3.327634	3.423103	3.518831	3.614797	3.710980	3.807365	3.903935
0.46	3.067556	3.162136	3.257052	3.352275	3.447778	3.543537	3.639531	3.735740	3.832149	3.928742
0.47	3.092021	3.186644	3.281601	3.376860	3.472396	3.568185	3.664207	3.760442	3.856875	3.953489
0.48	3.116448	3.211114	3.306109	3.401404	3.496972	3.592792	3.688841	3.785102	3.881558	3.978194
0.49	3.140851	3.235559	3.330592	3.425922	3.521523	3.617372	3.713448	3.809734	3.906213	4.002871
0.50	3.165246	3.259995	3.355067	3.450431	3.546064	3.641941	3.738045	3.834355	3.930857	4.027535

R = R(P,d) where probability P = P(R,d)

P\d	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90
0.50	3.165246	3.259995	3.355067	3.450431	3.546064	3.641941	3.738045	3.834355	3.930857	4.027535
0.51	3.189648	3.284438	3.379547	3.474945	3.570609	3.666516	3.762645	3.858980	3.955504	4.052203
0.52	3.214072	3.308903	3.404048	3.499480	3.595175	3.691110	3.787265	3.883624	3.980170	4.076890
0.53	3.238534	3.333405	3.428586	3.524052	3.619776	3.715739	3.811920	3.908303	4.004871	4.101612
0.54	3.263050	3.357959	3.453177	3.548675	3.644429	3.740420	3.836626	3.933032	4.029622	4.126383
0.55	3.287634	3.382582	3.477835	3.573365	3.669149	3.765167	3.861399	3.957828	4.054440	4.151220
0.56	3.312303	3.407289	3.502577	3.598139	3.693953	3.789997	3.886254	3.982706	4.079339	4.176140
0.57	3.337073	3.432097	3.527419	3.623013	3.718856	3.814927	3.911209	4.007684	4.104338	4.201158
0.58	3.361961	3.457023	3.552379	3.648004	3.743876	3.839974	3.936280	4.032777	4.129453	4.226292
0.59	3.386985	3.482083	3.577474	3.673130	3.769030	3.865154	3.961484	4.058005	4.154701	4.251559
0.60	3.412162	3.507297	3.602721	3.698408	3.794337	3.890487	3.986841	4.083384	4.180100	4.276978
0.61	3.437511	3.532683	3.628140	3.723858	3.819814	3.915990	4.012369	4.108933	4.205670	4.302567
0.62	3.463051	3.558259	3.653750	3.749498	3.845483	3.941684	4.038086	4.134673	4.231431	4.328347
0.63	3.488804	3.584048	3.679571	3.775350	3.871362	3.967590	4.064015	4.160624	4.257402	4.354337
0.64	3.514791	3.610071	3.705627	3.801435	3.897475	3.993728	4.090177	4.186808	4.283606	4.380560
0.65	3.541034	3.636350	3.731938	3.827776	3.923844	4.020122	4.116595	4.213247	4.310066	4.407038
0.66	3.567559	3.662909	3.758530	3.854398	3.950493	4.046797	4.143293	4.239967	4.336806	4.433797
0.67	3.594390	3.689776	3.785429	3.881327	3.977449	4.073778	4.170298	4.266993	4.363852	4.460862
0.68	3.621556	3.716976	3.812662	3.908589	4.004739	4.101093	4.197636	4.294354	4.391233	4.488261
0.69	3.649086	3.744541	3.840259	3.936216	4.032393	4.128773	4.225339	4.322078	4.418977	4.516025
0.70	3.677012	3.772503	3.868252	3.964239	4.060443	4.156848	4.253438	4.350199	4.447118	4.544184
0.71	3.705370	3.800895	3.896677	3.992693	4.088925	4.185355	4.281968	4.378751	4.475690	4.572776
0.72	3.734196	3.829757	3.925571	4.021617	4.117876	4.214332	4.310968	4.407772	4.504732	4.601836
0.73	3.763534	3.859130	3.954976	4.051052	4.147338	4.243819	4.340479	4.437305	4.534285	4.631408
0.74	3.793427	3.889059	3.984937	4.081042	4.177356	4.273863	4.370547	4.467395	4.564395	4.661537
0.75	3.823927	3.919594	4.015505	4.111640	4.207982	4.304514	4.401221	4.498092	4.595113	4.692274
0.76	3.855089	3.950791	4.046735	4.142900	4.239270	4.335827	4.432559	4.529452	4.626493	4.723674
0.77	3.886975	3.982712	4.078689	4.174885	4.271283	4.367866	4.464622	4.561537	4.658600	4.755800
0.78	3.919654	4.015428	4.111438	4.207664	4.304090	4.400700	4.497480	4.594418	4.691502	4.788722
0.79	3.953206	4.049016	4.145059	4.241316	4.337771	4.434407	4.531212	4.628173	4.725278	4.822518
0.80	3.987718	4.083565	4.179642	4.275931	4.372414	4.469078	4.565907	4.662891	4.760018	4.857279
0.81	4.023294	4.119177	4.215289	4.311609	4.408122	4.504813	4.601668	4.698675	4.795824	4.893105
0.82	4.060049	4.155970	4.252116	4.348469	4.445012	4.541730	4.638611	4.735642	4.832814	4.930115
0.83	4.098119	4.194079	4.290260	4.386646	4.483219	4.579965	4.676872	4.773928	4.871122	4.968446
0.84	4.137664	4.233663	4.329880	4.426299	4.522903	4.619678	4.716612	4.813693	4.910911	5.008255
0.85	4.178871	4.274910	4.371164	4.467617	4.564253	4.661057	4.758019	4.855125	4.952366	5.049734
0.86	4.221964	4.318044	4.414337	4.510824	4.607493	4.704328	4.801317	4.898450	4.995715	5.093106
0.87	4.267217	4.363338	4.459670	4.556194	4.652895	4.749761	4.846780	4.943939	5.041230	5.138644
0.88	4.314961	4.411126	4.507497	4.604059	4.700795	4.797693	4.894741	4.991929	5.089246	5.186685
0.89	4.365613	4.461824	4.558237	4.654836	4.751608	4.848540	4.945620	5.042836	5.140181	5.237645
0.90	4.419704	4.515961	4.612417	4.709057	4.805867	4.902833	4.999946	5.097193	5.194566	5.292056
0.91	4.477921	4.574228	4.670730	4.767412	4.864261	4.961264	5.058410	5.155689	5.253092	5.350611
0.92	4.541187	4.637545	4.734095	4.830822	4.927713	5.024755	5.121937	5.219251	5.316685	5.414234
0.93	4.610774	4.707188	4.803790	4.900565	4.997500	5.094583	5.191805	5.289154	5.386623	5.484203
0.94	4.688520	4.784994	4.881652	4.978478	5.075462	5.172591	5.269854	5.367243	5.464749	5.562364
0.95	4.777225	4.873765	4.970484	5.067368	5.164405	5.261583	5.358893	5.456326	5.553872	5.651526
0.96	4.881487	4.978102	5.074890	5.171838	5.268935	5.366170	5.463533	5.561015	5.658608	5.756305
0.97	5.009727	5.106429	5.203299	5.300323	5.397491	5.494792	5.592217	5.689757	5.787405	5.885154
0.98	5.180303	5.277115	5.374086	5.471206	5.568463	5.665847	5.763350	5.860964	5.958681	6.056494
0.99	5.449368	5.546339	5.643458	5.740716	5.838103	5.935609	6.033226	6.130947	6.228764	6.326673

R = R(P,d) where probability P = P(R,d)

P\d	4.00	4.10	4.20	4.30	4.40	4.50	4.60	4.70	4.80	4.90
0.01	1.857355	1.950623	2.044379	2.138572	2.233156	2.328092	2.423347	2.518890	2.614696	2.710742
0.02	2.118937	2.213049	2.307557	2.402420	2.497605	2.593082	2.688825	2.784811	2.881019	2.977432
0.03	2.285788	2.380336	2.475235	2.570449	2.665952	2.761717	2.857721	2.953946	3.050373	3.146986
0.04	2.411677	2.506514	2.601672	2.697122	2.792837	2.888796	2.984977	3.081364	3.177939	3.274688
0.05	2.514287	2.609338	2.704688	2.800312	2.896187	2.992291	3.088605	3.185113	3.281800	3.378653
0.06	2.601759	2.696977	2.792480	2.888243	2.984244	3.080464	3.176884	3.273490	3.370267	3.467202
0.07	2.678547	2.773904	2.869533	2.965411	3.061517	3.157832	3.254341	3.351028	3.447879	3.544884
0.08	2.747372	2.842847	2.938582	3.034558	3.130753	3.227150	3.323734	3.420490	3.517406	3.614470
0.09	2.810019	2.905596	3.001424	3.097485	3.193757	3.290226	3.386876	3.483693	3.580665	3.677781
0.10	2.867729	2.963395	3.059306	3.155441	3.251783	3.348315	3.445024	3.541894	3.638916	3.736079
0.11	2.921400	3.017146	3.113131	3.209333	3.305737	3.402326	3.499086	3.596006	3.693073	3.790277
0.12	2.971704	3.067523	3.163574	3.259837	3.356297	3.452938	3.549746	3.646709	3.743817	3.841059
0.13	3.019158	3.115043	3.211155	3.307474	3.403985	3.500673	3.597525	3.694529	3.791674	3.888951
0.14	3.064170	3.160116	3.256283	3.352654	3.449212	3.545944	3.642836	3.739877	3.837057	3.934367
0.15	3.107065	3.203067	3.299286	3.395705	3.492307	3.589079	3.686009	3.783085	3.880297	3.977637
0.16	3.148109	3.244165	3.340432	3.436894	3.533538	3.630348	3.727312	3.824421	3.921664	4.019031
0.17	3.187524	3.283628	3.379941	3.476445	3.573126	3.669972	3.766969	3.864109	3.961380	4.058774
0.18	3.225492	3.321642	3.417997	3.514541	3.611258	3.708137	3.805166	3.902334	3.999632	4.097051
0.19	3.262169	3.358363	3.454758	3.551339	3.648090	3.745001	3.842059	3.939255	4.036578	4.134020
0.20	3.297689	3.393925	3.490358	3.586973	3.683758	3.780698	3.877784	3.975006	4.072353	4.169818
0.21	3.332167	3.428442	3.524911	3.621560	3.718375	3.815344	3.912457	4.009703	4.107073	4.204560
0.22	3.365703	3.462015	3.558518	3.655199	3.752044	3.849040	3.946178	4.043448	4.140840	4.238347
0.23	3.398383	3.494731	3.591267	3.687979	3.784851	3.881874	3.979036	4.076328	4.173742	4.271269
0.24	3.430286	3.526668	3.623236	3.719976	3.816876	3.913924	4.011109	4.108423	4.205857	4.303402
0.25	3.461479	3.557894	3.654492	3.751260	3.848186	3.945258	4.042466	4.139801	4.237254	4.334818
0.26	3.492024	3.588470	3.685098	3.781893	3.878844	3.975939	4.073169	4.170524	4.267996	4.365577
0.27	3.521975	3.618452	3.715108	3.811929	3.908904	4.006022	4.103272	4.200647	4.298137	4.395735
0.28	3.551383	3.647889	3.744572	3.841419	3.938417	4.035556	4.132827	4.230220	4.327728	4.425343
0.29	3.580292	3.676827	3.773536	3.870407	3.967427	4.064588	4.161878	4.259289	4.356814	4.454445
0.30	3.608743	3.705305	3.802040	3.898934	3.995977	4.093157	4.190466	4.287896	4.385437	4.483083
0.31	3.636773	3.733362	3.830121	3.927048	4.024102	4.121303	4.218630	4.316077	4.413634	4.511296
0.32	3.664417	3.761032	3.857815	3.954755	4.051839	4.149059	4.246405	4.343868	4.441441	4.539117
0.33	3.691707	3.788347	3.885154	3.982115	4.079220	4.176458	4.273821	4.371300	4.468889	4.566579
0.34	3.718672	3.815337	3.912166	4.009148	4.106273	4.203529	4.300909	4.398405	4.496008	4.593712
0.35	3.745340	3.842029	3.938880	4.035883	4.133026	4.230301	4.327697	4.425208	4.522826	4.620544
0.36	3.771737	3.868448	3.965321	4.062344	4.159506	4.256798	4.354211	4.451737	4.549369	4.647100
0.37	3.797885	3.894620	3.991514	4.088556	4.185737	4.283045	4.380474	4.478015	4.575661	4.673406
0.38	3.823809	3.920566	4.017481	4.114542	4.211741	4.309066	4.406511	4.504066	4.601726	4.699483
0.39	3.849530	3.946309	4.043244	4.140324	4.237540	4.334882	4.432341	4.529911	4.627584	4.725354
0.40	3.875068	3.971868	4.068823	4.165922	4.263155	4.360513	4.457987	4.555571	4.653257	4.751040
0.41	3.900443	3.997264	4.094238	4.191355	4.288605	4.385979	4.483468	4.581066	4.678765	4.776559
0.42	3.925674	4.022515	4.119509	4.216643	4.313910	4.411299	4.508803	4.606414	4.704126	4.801932
0.43	3.950778	4.047640	4.144652	4.241804	4.339087	4.436491	4.534009	4.631633	4.729358	4.827176
0.44	3.975773	4.072655	4.169685	4.266855	4.364153	4.461572	4.559105	4.656742	4.754479	4.852308
0.45	4.000676	4.097577	4.194626	4.291812	4.389127	4.486561	4.584107	4.681757	4.779506	4.877346
0.46	4.025504	4.122424	4.219491	4.316694	4.414024	4.511472	4.609031	4.706695	4.804455	4.902307
0.47	4.050272	4.147211	4.244295	4.341515	4.438860	4.536323	4.633896	4.731571	4.829344	4.927207
0.48	4.074997	4.171954	4.269056	4.366292	4.463652	4.561129	4.658715	4.756403	4.854187	4.952061
0.49	4.099693	4.196670	4.293788	4.391040	4.488415	4.585906	4.683505	4.781206	4.879001	4.976886
0.50	4.124378	4.221372	4.318508	4.415775	4.513165	4.610670	4.708282	4.805994	4.903801	5.001697

R = R(P,d) where probability P = P(R,d)

P\d	4.00	4.10	4.20	4.30	4.40	4.50	4.60	4.70	4.80	4.90
0.50	4.124378	4.221372	4.318508	4.415775	4.513165	4.610670	4.708282	4.805994	4.903801	5.001697
0.51	4.149065	4.246077	4.343230	4.440513	4.537917	4.635436	4.733061	4.830785	4.928603	5.026510
0.52	4.173771	4.270801	4.367970	4.465268	4.562688	4.660219	4.757857	4.855594	4.953423	5.051340
0.53	4.198511	4.295559	4.392744	4.490058	4.587491	4.685037	4.782687	4.880435	4.978275	5.076203
0.54	4.223301	4.320366	4.417568	4.514897	4.612344	4.709903	4.807565	4.905325	5.003177	5.101114
0.55	4.248157	4.345239	4.442457	4.539801	4.637263	4.734834	4.832509	4.930281	5.028143	5.126091
0.56	4.273095	4.370194	4.467428	4.564787	4.662262	4.759847	4.857534	4.955317	5.053190	5.151148
0.57	4.298131	4.395248	4.492497	4.589871	4.687360	4.784958	4.882657	4.980452	5.078336	5.176304
0.58	4.323284	4.420417	4.517682	4.615070	4.712573	4.810184	4.907895	5.005701	5.103596	5.201574
0.59	4.348569	4.445719	4.543000	4.640403	4.737915	4.835543	4.933266	5.031083	5.128989	5.226977
0.60	4.374006	4.471172	4.568469	4.665886	4.763416	4.861053	4.958788	5.056616	5.154532	5.252530
0.61	4.399613	4.496796	4.594108	4.691540	4.789084	4.886732	4.984480	5.082319	5.180246	5.278254
0.62	4.425410	4.522609	4.619937	4.717383	4.814940	4.912602	5.010361	5.108212	5.206149	5.304167
0.63	4.451418	4.548634	4.645976	4.743437	4.841008	4.938682	5.036453	5.134315	5.232263	5.330291
0.64	4.477658	4.574891	4.672249	4.769724	4.867308	4.964995	5.062778	5.160651	5.258609	5.356646
0.65	4.504154	4.601403	4.698776	4.796266	4.893863	4.991563	5.089358	5.187242	5.285210	5.383258
0.66	4.530930	4.628196	4.725584	4.823088	4.920699	5.018411	5.116217	5.214113	5.312092	5.410149
0.67	4.558013	4.655295	4.752698	4.850216	4.947841	5.045565	5.143384	5.241290	5.339280	5.437347
0.68	4.585430	4.682728	4.780147	4.877679	4.975317	5.073054	5.170884	5.268802	5.366802	5.464879
0.69	4.613210	4.710525	4.807959	4.905505	5.003157	5.100907	5.198749	5.296678	5.394688	5.492775
0.70	4.641388	4.738718	4.836168	4.933729	5.031394	5.129156	5.227010	5.324950	5.422971	5.521069
0.71	4.669996	4.767343	4.864808	4.962384	5.060062	5.157837	5.255703	5.353655	5.451686	5.549794
0.72	4.699075	4.796438	4.893919	4.991508	5.089200	5.186988	5.284866	5.382829	5.480871	5.578989
0.73	4.728665	4.826045	4.923541	5.021145	5.118851	5.216651	5.314541	5.412515	5.510569	5.608696
0.74	4.758811	4.856208	4.953720	5.051339	5.149058	5.246872	5.344774	5.442760	5.540824	5.638962
0.75	4.789566	4.886980	4.984507	5.082141	5.179874	5.277701	5.375615	5.473612	5.571687	5.669835
0.76	4.820984	4.918415	5.015958	5.113606	5.211354	5.309194	5.407121	5.505129	5.603215	5.701374
0.77	4.853128	4.950576	5.048135	5.145799	5.243560	5.341413	5.439353	5.537374	5.635471	5.733640
0.78	4.886069	4.983534	5.081109	5.178788	5.276563	5.374430	5.472382	5.570415	5.668523	5.766703
0.79	4.919884	5.017366	5.114958	5.212652	5.310442	5.408323	5.506288	5.604332	5.702452	5.800643
0.80	4.954663	5.052163	5.149771	5.247481	5.345286	5.443180	5.541158	5.639216	5.737347	5.835549
0.81	4.990509	5.088027	5.185652	5.283378	5.381198	5.479106	5.577097	5.675167	5.773310	5.871523
0.82	5.027538	5.125075	5.222718	5.320459	5.418295	5.516217	5.614222	5.712304	5.810460	5.908684
0.83	5.065889	5.163444	5.261104	5.358862	5.456713	5.554650	5.652669	5.750765	5.848932	5.947168
0.84	5.105719	5.203293	5.300971	5.398747	5.496613	5.594566	5.692599	5.790707	5.888888	5.987136
0.85	5.147218	5.244812	5.342509	5.440301	5.538184	5.636152	5.734199	5.832322	5.930515	6.028776
0.86	5.190612	5.288226	5.385941	5.483752	5.581652	5.679635	5.777698	5.875834	5.974041	6.072314
0.87	5.236172	5.333807	5.431543	5.529372	5.627289	5.725289	5.823367	5.921518	6.019739	6.118025
0.88	5.284236	5.381892	5.479648	5.577496	5.675431	5.773448	5.871542	5.969709	6.067944	6.166243
0.89	5.335220	5.432899	5.530676	5.628544	5.726497	5.824532	5.922643	6.020825	6.119075	6.217389
0.90	5.389656	5.487359	5.585158	5.683047	5.781020	5.879073	5.977202	6.075401	6.173667	6.271995
0.91	5.448237	5.545965	5.643787	5.741698	5.839692	5.937765	6.035912	6.134128	6.232411	6.330756
0.92	5.511888	5.609642	5.707489	5.805423	5.903440	6.001533	6.099700	6.197935	6.296235	6.394597
0.93	5.581888	5.679670	5.777543	5.875503	5.973543	6.071659	6.169847	6.268102	6.366421	6.464801
0.94	5.660081	5.757894	5.855796	5.953783	6.051849	6.149990	6.248200	6.346478	6.444818	6.543217
0.95	5.749279	5.847126	5.945061	6.043078	6.141172	6.239340	6.337576	6.435878	6.534241	6.632662
0.96	5.854100	5.951985	6.049956	6.148008	6.246135	6.344333	6.442599	6.540928	6.639318	6.737764
0.97	5.982997	6.080928	6.178942	6.277034	6.375200	6.473435	6.571735	6.670098	6.768518	6.866994
0.98	6.154398	6.252387	6.350456	6.448600	6.546814	6.645096	6.743440	6.841844	6.940304	7.038818
0.99	6.424667	6.522741	6.620890	6.719110	6.817396	6.915746	7.014155	7.112621	7.211140	7.309709

R = R(P,d) where probability P = P(R,d)

P\d	5.00	5.20	5.40	5.60	5.80	6.00	6.20	6.40	6.60	6.80
0.01	2.807007	3.000126	3.193930	3.388322	3.583219	3.778556	3.974279	4.170340	4.366700	4.563327
0.02	3.074034	3.267743	3.462049	3.656869	3.852137	4.047796	4.243799	4.440107	4.636686	4.833508
0.03	3.243770	3.437806	3.632390	3.827450	4.022926	4.218767	4.414931	4.611380	4.808085	5.005018
0.04	3.371599	3.565858	3.760634	3.955861	4.151482	4.347450	4.543726	4.740275	4.937068	5.134081
0.05	3.475659	3.670088	3.865011	4.060365	4.256098	4.452164	4.648526	4.845152	5.042014	5.239088
0.06	3.564285	3.758851	3.953892	4.149250	4.345173	4.541319	4.737752	4.934441	5.131359	5.328483
0.07	3.642031	3.836711	4.031853	4.227397	4.423296	4.619510	4.816002	5.012744	5.209710	5.406877
0.08	3.711672	3.906452	4.101679	4.297298	4.493264	4.689535	4.886080	5.082868	5.279875	5.477079
0.09	3.775031	3.969897	4.165200	4.360886	4.556909	4.753232	4.949822	5.146652	5.343695	5.540933
0.10	3.833372	4.028315	4.223685	4.419440	4.615506	4.811875	5.008506	5.205372	5.402449	5.599716
0.11	3.887609	4.082622	4.278053	4.473851	4.669974	4.866385	5.063054	5.259953	5.457060	5.654355
0.12	3.938426	4.133504	4.328990	4.524837	4.721003	4.917453	5.114156	5.311086	5.508220	5.705539
0.13	3.986351	4.181487	4.377025	4.572917	4.769123	4.965608	5.162343	5.359301	5.556461	5.753803
0.14	4.031797	4.226987	4.422572	4.618506	4.814749	5.011267	5.208031	5.405016	5.602200	5.799563
0.15	4.075094	4.270335	4.465965	4.661928	4.858216	5.054765	5.251556	5.448566	5.645772	5.843155
0.16	4.116515	4.311803	4.507475	4.703485	4.899795	5.096373	5.293190	5.490223	5.687450	5.884853
0.17	4.156282	4.351615	4.547326	4.743370	4.939711	5.136316	5.333158	5.530213	5.727460	5.924881
0.18	4.194583	4.389958	4.585705	4.781783	4.978153	5.174784	5.371649	5.568725	5.765991	5.963428
0.19	4.231575	4.426989	4.622772	4.818881	5.015279	5.211935	5.408822	5.605918	5.803201	6.000655
0.20	4.267393	4.462846	4.658663	4.854801	5.051225	5.247904	5.444813	5.641928	5.839228	6.036698
0.21	4.302155	4.497644	4.693493	4.889560	5.086109	5.282811	5.479740	5.676873	5.874190	6.071674
0.22	4.335962	4.531486	4.727365	4.923359	5.120032	5.316756	5.513704	5.710855	5.908188	6.105687
0.23	4.368901	4.564459	4.760368	4.956588	5.153085	5.349829	5.546796	5.743963	5.941311	6.138824
0.24	4.401053	4.596643	4.792580	4.988825	5.185344	5.382109	5.579094	5.776277	5.973640	6.171166
0.25	4.432486	4.628106	4.824071	5.020340	5.216881	5.413665	5.610667	5.807866	6.005244	6.202783
0.26	4.463261	4.658912	4.854903	5.051196	5.247758	5.444560	5.641579	5.838794	6.036185	6.233736
0.27	4.493435	4.689115	4.885132	5.081447	5.278029	5.474850	5.671885	5.869114	6.066519	6.264082
0.28	4.523058	4.718766	4.914807	5.111145	5.307747	5.504585	5.701636	5.898880	6.096297	6.293872
0.29	4.552175	4.747910	4.943976	5.140335	5.336956	5.533811	5.730878	5.928135	6.125565	6.323152
0.30	4.580828	4.776590	4.972679	5.169058	5.365698	5.562570	5.759652	5.956923	6.154365	6.351963
0.31	4.609055	4.804842	5.000954	5.197354	5.394011	5.590900	5.787996	5.985280	6.182735	6.380343
0.32	4.636890	4.832702	5.028836	5.225256	5.421931	5.618835	5.815946	6.013243	6.210709	6.408329
0.33	4.664365	4.860202	5.056358	5.252797	5.449489	5.646409	5.843534	6.040844	6.238321	6.435951
0.34	4.691512	4.887372	5.083549	5.280007	5.476716	5.673651	5.870790	6.068112	6.265601	6.463241
0.35	4.718356	4.914240	5.110438	5.306914	5.503640	5.700590	5.897742	6.095076	6.292576	6.490226
0.36	4.744925	4.940832	5.137050	5.333544	5.530286	5.727251	5.924416	6.121762	6.319272	6.516932
0.37	4.771243	4.967172	5.163409	5.359922	5.556680	5.753659	5.950836	6.148194	6.345715	6.543385
0.38	4.797332	4.993283	5.189540	5.386070	5.582844	5.779836	5.977027	6.174396	6.371928	6.569607
0.39	4.823215	5.019187	5.215464	5.412010	5.608799	5.805806	6.003009	6.200390	6.397931	6.595620
0.40	4.848912	5.044906	5.241201	5.437764	5.634568	5.831589	6.028804	6.226195	6.423747	6.621445
0.41	4.874443	5.070457	5.266771	5.463351	5.660170	5.857204	6.054431	6.251833	6.449395	6.647102
0.42	4.899827	5.095862	5.292193	5.488790	5.685623	5.882670	6.079909	6.277323	6.474894	6.672610
0.43	4.925081	5.121137	5.317486	5.514099	5.710947	5.908006	6.105257	6.302681	6.500263	6.697987
0.44	4.950225	5.146300	5.342667	5.539296	5.736158	5.933230	6.130493	6.327927	6.525518	6.723251
0.45	4.975274	5.171369	5.367753	5.564397	5.761274	5.958359	6.155633	6.353078	6.550678	6.748420
0.46	5.000245	5.196359	5.392761	5.589421	5.786311	5.983409	6.180694	6.378149	6.575759	6.773509
0.47	5.025155	5.221289	5.417708	5.614382	5.811286	6.008396	6.205692	6.403158	6.600777	6.798536
0.48	5.050020	5.246172	5.442608	5.639298	5.836215	6.033337	6.230645	6.428120	6.625748	6.823516
0.49	5.074855	5.271026	5.467478	5.664183	5.861114	6.058248	6.255567	6.453052	6.650689	6.848465
0.50	5.099676	5.295865	5.492334	5.689054	5.885998	6.083144	6.280474	6.477969	6.675615	6.873399

R = R(P, d) where probability P = P(R,d)

P\d	5.00	5.20	5.40	5.60	5.80	6.00	6.20	6.40	6.60	6.80
0.50	5.099676	5.295865	5.492334	5.689054	5.885998	6.083144	6.280474	6.477969	6.675615	6.873399
0.51	5.124499	5.320706	5.517192	5.713926	5.910883	6.108041	6.305381	6.502886	6.700542	6.898334
0.52	5.149339	5.345564	5.542066	5.738814	5.935785	6.132955	6.330306	6.527821	6.725485	6.923285
0.53	5.174211	5.370455	5.566973	5.763736	5.960719	6.157901	6.355262	6.552787	6.750460	6.948268
0.54	5.199133	5.395394	5.591928	5.788705	5.985702	6.182895	6.380267	6.577801	6.775483	6.973299
0.55	5.224119	5.420398	5.616948	5.813739	6.010748	6.207953	6.405336	6.602880	6.800570	6.998394
0.56	5.249186	5.445483	5.642048	5.838854	6.035876	6.233093	6.430486	6.628039	6.825738	7.023570
0.57	5.274351	5.470665	5.667246	5.864066	6.061101	6.258329	6.455732	6.653295	6.851003	7.048843
0.58	5.299631	5.495963	5.692559	5.889393	6.086440	6.283680	6.481094	6.678666	6.876382	7.074230
0.59	5.325043	5.521392	5.718004	5.914852	6.111912	6.309163	6.506587	6.704169	6.901894	7.099750
0.60	5.350606	5.546973	5.743600	5.940462	6.137534	6.334797	6.532231	6.729822	6.927556	7.125420
0.61	5.376339	5.572723	5.769366	5.966241	6.163326	6.360600	6.558045	6.755645	6.953387	7.151259
0.62	5.402261	5.598662	5.795321	5.992210	6.189308	6.386593	6.584048	6.781658	6.979409	7.177288
0.63	5.428394	5.624812	5.821486	6.018390	6.215500	6.412796	6.610262	6.807881	7.005640	7.203528
0.64	5.454760	5.651195	5.847884	6.044802	6.241924	6.439232	6.636708	6.834336	7.032104	7.229999
0.65	5.481380	5.677833	5.874538	6.071469	6.268604	6.465923	6.663409	6.861047	7.058824	7.256727
0.66	5.508281	5.704751	5.901471	6.098416	6.295564	6.492894	6.690391	6.888038	7.085823	7.283735
0.67	5.535488	5.731975	5.928711	6.125670	6.322830	6.520172	6.717679	6.915336	7.113130	7.311049
0.68	5.563030	5.759534	5.956285	6.153258	6.350431	6.547784	6.745301	6.942968	7.140770	7.338698
0.69	5.590935	5.787457	5.984224	6.181211	6.378396	6.575761	6.773289	6.970965	7.168776	7.366711
0.70	5.619238	5.815777	6.012559	6.209560	6.406758	6.604135	6.801673	6.999359	7.197179	7.395122
0.71	5.647972	5.844529	6.041327	6.238342	6.435553	6.632941	6.830490	7.028185	7.226014	7.423966
0.72	5.677177	5.873751	6.070565	6.267595	6.464818	6.662218	6.859778	7.057483	7.255321	7.453281
0.73	5.706894	5.903486	6.100316	6.297360	6.494596	6.692008	6.889579	7.087293	7.285140	7.483108
0.74	5.737169	5.933779	6.130625	6.327683	6.524933	6.722357	6.919938	7.117663	7.315519	7.513495
0.75	5.768053	5.964680	6.161542	6.358615	6.555879	6.753314	6.950907	7.148642	7.346507	7.544492
0.76	5.799601	5.996247	6.193125	6.390213	6.587490	6.784938	6.982541	7.180286	7.378161	7.576154
0.77	5.831877	6.028541	6.225436	6.422539	6.619829	6.817290	7.014904	7.212660	7.410544	7.608546
0.78	5.864950	6.061633	6.258545	6.455663	6.652967	6.850440	7.048066	7.245832	7.443726	7.641737
0.79	5.898900	6.095602	6.292531	6.489665	6.686983	6.884468	7.082106	7.279883	7.477786	7.675806
0.80	5.933817	6.130538	6.327484	6.524633	6.721966	6.919464	7.117114	7.314902	7.512815	7.710844
0.81	5.969802	6.166543	6.363507	6.560672	6.758019	6.955531	7.153192	7.350991	7.548915	7.746953
0.82	6.006974	6.203734	6.400717	6.597898	6.795260	6.992785	7.190459	7.388269	7.586203	7.784251
0.83	6.045469	6.242250	6.439251	6.636449	6.833826	7.031365	7.229052	7.426874	7.624818	7.822876
0.84	6.085448	6.282250	6.479270	6.676485	6.873878	7.071431	7.269131	7.466964	7.664920	7.862988
0.85	6.127099	6.323923	6.520962	6.718195	6.915604	7.113172	7.310885	7.508731	7.706698	7.904776
0.86	6.170650	6.367496	6.564555	6.761806	6.959232	7.156815	7.354542	7.552400	7.750379	7.948468
0.87	6.216373	6.413242	6.610322	6.807592	7.005035	7.202634	7.400375	7.598247	7.796237	7.994337
0.88	6.264605	6.461497	6.658599	6.855889	7.053349	7.250965	7.448721	7.646606	7.844610	8.042721
0.89	6.315764	6.512682	6.709806	6.907117	7.104596	7.302228	7.500000	7.697900	7.895916	8.094040
0.90	6.370384	6.567328	6.764476	6.961809	7.159307	7.356958	7.554746	7.752661	7.950691	8.148828
0.91	6.429159	6.626131	6.823304	7.020659	7.218179	7.415848	7.613654	7.811585	8.009630	8.207780
0.92	6.493016	6.690018	6.887218	7.084597	7.282139	7.479828	7.677653	7.875601	8.073662	8.271827
0.93	6.563238	6.760271	6.957500	7.154906	7.352471	7.550183	7.748027	7.945994	8.144072	8.342252
0.94	6.641673	6.838741	7.036001	7.233436	7.431028	7.628763	7.826630	8.024616	8.222713	8.420911
0.95	6.731139	6.928246	7.125541	7.323008	7.520629	7.718391	7.916282	8.114292	8.312409	8.510627
0.96	6.836264	7.033415	7.230751	7.428254	7.625909	7.823702	8.021621	8.219656	8.417798	8.616037
0.97	6.965523	7.162726	7.360110	7.557656	7.755351	7.953181	8.151134	8.349200	8.547370	8.745636
0.98	7.137383	7.334653	7.532098	7.729700	7.927445	8.125322	8.323318	8.521424	8.719631	8.917931
0.99	7.408327	7.605697	7.803232	8.000917	8.198738	8.396685	8.594745	8.792911	8.991172	9.189523

R = R(P,d) where probability P = P(R,d)

P\d	7.00	7.20	7.40	7.60	7.80	8.00	8.20	8.40	8.60	8.80
0.01	4.760193	4.957271	5.154542	5.351987	5.549589	5.747335	5.945211	6.143207	6.341313	6.539520
0.02	5.030546	5.227780	5.425190	5.622761	5.820478	6.018327	6.216298	6.414381	6.612566	6.810845
0.03	5.202157	5.399481	5.596973	5.794617	5.992401	6.190311	6.388338	6.586472	6.784704	6.983027
0.04	5.331290	5.528679	5.726229	5.923926	6.121757	6.319711	6.517778	6.715948	6.914214	7.112568
0.05	5.436353	5.633791	5.831387	6.029125	6.226994	6.424982	6.623080	6.821279	7.019572	7.217950
0.06	5.525794	5.723273	5.920905	6.118677	6.316577	6.514593	6.712718	6.910941	7.109255	7.307654
0.07	5.604226	5.801740	5.999404	6.197205	6.395131	6.593172	6.791318	6.989562	7.187895	7.386311
0.08	5.674462	5.872007	6.069698	6.267524	6.465473	6.663535	6.861701	7.059962	7.258312	7.456743
0.09	5.738345	5.935917	6.133633	6.331482	6.529451	6.727532	6.925715	7.123992	7.322356	7.520801
0.10	5.797156	5.994752	6.192490	6.390359	6.588347	6.786445	6.984643	7.182935	7.381312	7.579770
0.11	5.851818	6.049437	6.247195	6.445083	6.643088	6.841201	7.039414	7.237718	7.436108	7.634577
0.12	5.903026	6.100665	6.298442	6.496346	6.694367	6.892494	7.090720	7.289037	7.487438	7.685917
0.13	5.951310	6.148968	6.346763	6.544683	6.742718	6.940859	7.139097	7.337425	7.535836	7.734325
0.14	5.997090	6.194765	6.392576	6.590511	6.788560	6.986713	7.184963	7.383301	7.581722	7.780220
0.15	6.040701	6.238392	6.436218	6.634167	6.832229	7.030393	7.228654	7.427003	7.625433	7.823939
0.16	6.082415	6.280123	6.477963	6.675925	6.873998	7.072174	7.270445	7.468803	7.667242	7.865756
0.17	6.122459	6.320182	6.518036	6.716010	6.914095	7.112281	7.310561	7.508928	7.707376	7.905898
0.18	6.161022	6.358759	6.556626	6.754612	6.952707	7.150904	7.349193	7.547569	7.746024	7.944553
0.19	6.198264	6.396014	6.593893	6.791891	6.989996	7.188202	7.386501	7.584884	7.783347	7.981883
0.20	6.234321	6.432084	6.629975	6.827983	7.026099	7.224314	7.422621	7.621012	7.819482	8.018025
0.21	6.269311	6.467086	6.664988	6.863007	7.061132	7.259356	7.457671	7.656070	7.854547	8.053096
0.22	6.303336	6.501123	6.699036	6.897065	7.095199	7.293432	7.491754	7.690160	7.888644	8.087200
0.23	6.336486	6.534285	6.732209	6.930247	7.128390	7.326630	7.524961	7.723374	7.921864	8.120425
0.24	6.368840	6.566650	6.764584	6.962631	7.160783	7.359032	7.557369	7.755789	7.954285	8.152853
0.25	6.400469	6.598289	6.796233	6.994289	7.192449	7.390705	7.589050	7.787476	7.985979	8.184552
0.26	6.431433	6.629264	6.827217	7.025282	7.223451	7.421714	7.620065	7.818498	8.017007	8.215585
0.27	6.461791	6.659632	6.857594	7.055668	7.253844	7.452114	7.650472	7.848911	8.047425	8.246009
0.28	6.491592	6.689442	6.887414	7.085496	7.283679	7.481957	7.680322	7.878766	8.077286	8.275875
0.29	6.520882	6.718742	6.916722	7.114812	7.313003	7.511288	7.709659	7.908109	8.106634	8.305229
0.30	6.549703	6.747573	6.945561	7.143659	7.341857	7.540148	7.738526	7.936982	8.135512	8.334112
0.31	6.578093	6.775972	6.973969	7.172075	7.370280	7.568578	7.766961	7.965423	8.163959	8.362562
0.32	6.606088	6.803976	7.001981	7.200094	7.398306	7.596611	7.795000	7.993467	8.192008	8.390617
0.33	6.633720	6.831617	7.029630	7.227750	7.425969	7.624280	7.822674	8.021147	8.219693	8.418306
0.34	6.661019	6.858924	7.056945	7.255073	7.453299	7.651615	7.850016	8.048494	8.247044	8.445662
0.35	6.688013	6.885927	7.083955	7.282090	7.480322	7.678645	7.877051	8.075535	8.274090	8.472712
0.36	6.714729	6.912651	7.110687	7.308828	7.507067	7.705396	7.903807	8.102296	8.300856	8.499483
0.37	6.741190	6.939120	7.137164	7.335312	7.533557	7.731891	7.930308	8.128802	8.327367	8.525998
0.38	6.767421	6.965359	7.163410	7.361565	7.559816	7.758156	7.956578	8.155077	8.353646	8.552281
0.39	6.793443	6.991388	7.189446	7.387608	7.585865	7.784211	7.982638	8.181142	8.379716	8.578355
0.40	6.819276	7.017229	7.215294	7.413463	7.611726	7.810077	8.008510	8.207018	8.405597	8.604240
0.41	6.844941	7.042902	7.240974	7.439149	7.637418	7.835775	8.034213	8.232726	8.431309	8.629956
0.42	6.870458	7.068426	7.266505	7.464686	7.662961	7.861323	8.059766	8.258284	8.456871	8.655523
0.43	6.895843	7.093819	7.291905	7.490092	7.688373	7.886740	8.085188	8.283710	8.482302	8.680958
0.44	6.921115	7.119098	7.317191	7.515384	7.713671	7.912044	8.110497	8.309024	8.507619	8.706279
0.45	6.946291	7.144282	7.342381	7.540581	7.738873	7.937251	8.135709	8.334240	8.532840	8.731504
0.46	6.971389	7.169386	7.367492	7.565698	7.763996	7.962379	8.160842	8.359377	8.557981	8.756649
0.47	6.996423	7.194427	7.392540	7.590752	7.789055	7.987444	8.185911	8.384451	8.583059	8.781731
0.48	7.021410	7.219422	7.417541	7.615759	7.814068	8.012462	8.210933	8.409478	8.608090	8.806766
0.49	7.046367	7.244386	7.442511	7.640735	7.839049	8.037448	8.235925	8.434474	8.633090	8.831769
0.50	7.071309	7.269334	7.467466	7.665696	7.864016	8.062420	8.260901	8.459454	8.658075	8.856758

R = R(P,d) where probability P = P(R,d)

P\d	7.00	7.20	7.40	7.60	7.80	8.00	8.20	8.40	8.60	8.80
0.50	7.071309	7.269334	7.467466	7.665696	7.864016	8.062420	8.260901	8.459454	8.658075	8.856758
0.51	7.096251	7.294283	7.492422	7.690657	7.888983	8.087391	8.285877	8.484435	8.683059	8.881746
0.52	7.121210	7.319249	7.517393	7.715635	7.913965	8.112379	8.310870	8.509432	8.708060	8.906751
0.53	7.146200	7.344246	7.542397	7.740644	7.938980	8.137399	8.335894	8.534460	8.733093	8.931787
0.54	7.171239	7.369292	7.567448	7.765701	7.964043	8.162466	8.360966	8.559537	8.758173	8.956871
0.55	7.196341	7.394401	7.592564	7.790822	7.989169	8.187598	8.386102	8.584677	8.783317	8.982019
0.56	7.221524	7.419591	7.617760	7.816024	8.014376	8.212810	8.411319	8.609898	8.808542	9.007247
0.57	7.246804	7.444877	7.643053	7.841323	8.039680	8.238119	8.436632	8.635215	8.833864	9.032573
0.58	7.272199	7.470279	7.668460	7.866736	8.065099	8.263542	8.462060	8.660647	8.859299	9.058012
0.59	7.297726	7.495812	7.694000	7.892281	8.090649	8.289097	8.487620	8.686211	8.884867	9.083584
0.60	7.323403	7.521496	7.719690	7.917977	8.116350	8.314803	8.513330	8.711926	8.910586	9.109306
0.61	7.349250	7.547349	7.745549	7.943842	8.142220	8.340678	8.539210	8.737810	8.936474	9.135198
0.62	7.375286	7.573392	7.771598	7.969897	8.168280	8.366743	8.565279	8.763884	8.962552	9.161279
0.63	7.401533	7.599645	7.797858	7.996162	8.194551	8.393018	8.591559	8.790168	8.988840	9.187571
0.64	7.428012	7.626131	7.824350	8.022659	8.221054	8.419526	8.618071	8.816684	9.015360	9.214095
0.65	7.454746	7.652873	7.851097	8.049413	8.247812	8.446290	8.644839	8.843457	9.042136	9.240875
0.66	7.481761	7.679894	7.878125	8.076446	8.274851	8.473333	8.671888	8.870509	9.069193	9.267935
0.67	7.509083	7.707222	7.905459	8.103786	8.302197	8.500684	8.699243	8.897869	9.096557	9.295303
0.68	7.536739	7.734885	7.933129	8.131461	8.329877	8.528369	8.726933	8.925563	9.124255	9.323005
0.69	7.564760	7.762913	7.961163	8.159501	8.357922	8.556420	8.754988	8.953622	9.152318	9.351072
0.70	7.593178	7.791339	7.989594	8.187939	8.386365	8.584858	8.783441	8.982080	9.180780	9.379537
0.71	7.622030	7.820197	8.018459	8.216809	8.415241	8.613749	8.812326	9.010970	9.209674	9.408435
0.72	7.651352	7.849526	8.047795	8.246151	8.444588	8.643101	8.841684	9.040331	9.239040	9.437805
0.73	7.681187	7.879368	8.077644	8.276006	8.474449	8.672967	8.871554	9.070206	9.268919	9.467688
0.74	7.711582	7.909770	8.108052	8.306420	8.504869	8.703392	8.901984	9.100641	9.299358	9.498131
0.75	7.742586	7.940781	8.139070	8.337445	8.535899	8.734427	8.933025	9.131686	9.330407	9.529184
0.76	7.774257	7.972459	8.170755	8.369135	8.567596	8.766129	8.964732	9.163398	9.362124	9.560905
0.77	7.806656	8.004866	8.203168	8.401556	8.600022	8.798561	8.997169	9.195839	9.394570	9.593355
0.78	7.839855	8.038073	8.236382	8.434776	8.633248	8.831793	9.030405	9.229081	9.427816	9.626605
0.79	7.873933	8.072158	8.270474	8.468875	8.667353	8.865903	9.064521	9.263202	9.461941	9.660735
0.80	7.908979	8.107212	8.305536	8.503942	8.702427	8.900983	9.099607	9.298292	9.497036	9.695835
0.81	7.945097	8.143338	8.341668	8.540082	8.738573	8.937135	9.135764	9.334455	9.533204	9.732007
0.82	7.982404	8.180653	8.378991	8.577412	8.775909	8.974478	9.173112	9.371809	9.570562	9.769370
0.83	8.021038	8.219295	8.417641	8.616069	8.814573	9.013148	9.211788	9.410490	9.609249	9.808061
0.84	8.061159	8.259425	8.457779	8.656214	8.854725	9.053306	9.251953	9.450660	9.649424	9.848241
0.85	8.102957	8.301232	8.499594	8.698037	8.896555	9.095143	9.293795	9.492508	9.691278	9.890100
0.86	8.146658	8.344943	8.543313	8.741764	8.940290	9.138884	9.337543	9.536262	9.735037	9.933865
0.87	8.192538	8.390832	8.589212	8.787671	8.986204	9.184805	9.383471	9.582196	9.780977	9.979810
0.88	8.240933	8.439237	8.637625	8.836093	9.034634	9.233243	9.431916	9.630647	9.829434	10.02827
0.89	8.292263	8.490577	8.688975	8.887452	9.086001	9.284618	9.483298	9.682037	9.880830	10.07967
0.90	8.347062	8.545388	8.743796	8.942283	9.140841	9.339466	9.538153	9.736899	9.935699	10.13455
0.91	8.406027	8.604364	8.802784	9.001280	9.199848	9.398481	9.597177	9.795931	9.994738	10.19360
0.92	8.470087	8.668437	8.866868	9.065375	9.263952	9.462596	9.661300	9.860062	10.05888	10.25774
0.93	8.540528	8.738891	8.937334	9.135853	9.334442	9.533095	9.731809	9.930580	10.12940	10.32828
0.94	8.619202	8.817580	9.016037	9.214569	9.413170	9.611834	9.810559	10.00934	10.20817	10.40705
0.95	8.708936	8.907330	9.105803	9.304349	9.502963	9.701640	9.900376	10.09917	10.29801	10.49690
0.96	8.814367	9.012780	9.211271	9.409834	9.608463	9.807155	10.00590	10.20471	10.40356	10.60247
0.97	8.943990	9.142427	9.340939	9.539521	9.738169	9.936878	10.13564	10.33446	10.53333	10.73225
0.98	9.116317	9.314782	9.513322	9.711929	9.910601	10.10933	10.30812	10.50696	10.70585	10.90478
0.99	9.387957	9.586466	9.785047	9.983693	10.18240	10.38117	10.57998	10.77885	10.97777	11.17673

R = R(P,d) where probability P = P(R,d)

P\d	0.00	0.20	0.40	0.60	0.80	10.0	12.0	14.0	16.0	18.0
0.01	6.737820	6.936206	7.134671	7.333210	7.531818	7.730490	9.719931	11.71269	13.70741	15.70339
0.02	7.009212	7.207660	7.406183	7.604775	7.803432	8.002150	9.991914	11.98485	13.97968	15.97574
0.03	7.181433	7.379918	7.578475	7.777099	7.975786	8.174531	10.16449	12.15754	14.15244	16.14854
0.04	7.311004	7.509515	7.708097	7.906744	8.105451	8.304216	10.29432	12.28745	14.28240	16.27853
0.05	7.416408	7.614941	7.813542	8.012207	8.210931	8.409712	10.39993	12.39312	14.38811	16.38427
0.06	7.506131	7.704680	7.903297	8.101977	8.300716	8.499510	10.48982	12.48306	14.47809	16.47427
0.07	7.584804	7.783368	7.981999	8.180692	8.379443	8.578248	10.56864	12.56193	14.55698	16.55318
0.08	7.655250	7.853828	8.052471	8.251175	8.449937	8.648751	10.63921	12.63255	14.62762	16.62384
0.09	7.719321	7.917910	8.116544	8.315279	8.514050	8.712873	10.70340	12.69677	14.69187	16.68810
0.10	7.778301	7.976901	8.175544	8.374288	8.573068	8.771899	10.76248	12.75589	14.75101	16.74726
0.11	7.833118	8.031728	8.230401	8.429133	8.627920	8.826759	10.81739	12.81083	14.80597	16.80223
0.12	7.884468	8.083087	8.281748	8.480508	8.679303	8.878149	10.86883	12.86230	14.85746	16.85373
0.13	7.932885	8.131512	8.330201	8.528948	8.727750	8.926602	10.91733	12.91082	14.90600	16.90229
0.14	7.978789	8.177424	8.376120	8.574874	8.773682	8.972540	10.96331	12.95683	14.95202	16.94832
0.15	8.022516	8.221158	8.419841	8.618622	8.817435	9.016299	11.00711	13.00065	14.99586	16.99217
0.16	8.064340	8.262989	8.461699	8.660446	8.859285	9.058154	11.04901	13.04257	15.03779	17.03411
0.17	8.104489	8.303145	8.501861	8.700633	8.899458	9.098332	11.08922	13.08281	15.07804	17.07437
0.18	8.143151	8.341813	8.540535	8.739313	8.938143	9.137022	11.12795	13.12155	15.11680	17.11314
0.19	8.180488	8.379156	8.577884	8.776667	8.975502	9.174385	11.16534	13.15897	15.15423	17.15057
0.20	8.216636	8.415313	8.614043	8.812831	9.011670	9.210559	11.20155	13.19519	15.19047	17.18682
0.21	8.251713	8.450392	8.649131	8.847924	9.046768	9.245660	11.23668	13.23035	15.22563	17.22199
0.22	8.285822	8.484507	8.683250	8.882048	9.080897	9.279793	11.27085	13.26453	15.25982	17.25619
0.23	8.319054	8.517744	8.716492	8.915294	9.114147	9.313048	11.30413	13.29783	15.29314	17.28951
0.24	8.351486	8.550181	8.748934	8.947741	9.146598	9.345502	11.33661	13.33033	15.32565	17.32203
0.25	8.383190	8.581891	8.780648	8.979459	9.178320	9.377228	11.36837	13.36210	15.35743	17.35381
0.26	8.414229	8.612934	8.811694	9.010511	9.209376	9.408287	11.39945	13.39320	15.38854	17.38493
0.27	8.444658	8.643368	8.842134	9.040953	9.239822	9.438737	11.42993	13.42369	15.41904	17.41544
0.28	8.474529	8.673243	8.872013	9.070836	9.269709	9.468628	11.45984	13.45362	15.44898	17.44539
0.29	8.503887	8.702605	8.901380	9.100207	9.299083	9.498005	11.48925	13.48304	15.47841	17.47482
0.30	8.532775	8.731497	8.930276	9.129106	9.327986	9.526912	11.51818	13.51198	15.50736	17.50378
0.31	8.561230	8.759957	8.958739	9.157574	9.356457	9.555385	11.54668	13.54050	15.53588	17.53231
0.32	8.589283	8.788020	8.986806	9.185644	9.384530	9.583462	11.57478	13.56861	15.56401	17.56044
0.33	8.616983	8.815718	9.014508	9.213349	9.412239	9.611174	11.60251	13.59636	15.59176	17.58820
0.34	8.644343	8.843082	9.041876	9.240721	9.439614	9.638552	11.62991	13.62377	15.61919	17.61563
0.35	8.671397	8.870140	9.068937	9.267786	9.466682	9.665623	11.65700	13.65088	15.64630	17.64275
0.36	8.698171	8.896918	9.095719	9.294571	9.493470	9.692414	11.68382	13.67770	15.67314	17.66959
0.37	8.724691	8.923441	9.122246	9.321101	9.520003	9.718950	11.71037	13.70428	15.69971	17.69618
0.38	8.750978	8.949733	9.148541	9.347389	9.546305	9.745254	11.73670	13.73061	15.72606	17.72253
0.39	8.777054	8.975814	9.174626	9.373487	9.572396	9.771348	11.76281	13.75674	15.75220	17.74867
0.40	8.802945	9.001707	9.200521	9.399386	9.598298	9.797253	11.78874	13.78268	15.77814	17.77462
0.41	8.828665	9.027430	9.226248	9.425116	9.624031	9.822989	11.81450	13.80845	15.80392	17.80040
0.42	8.854235	9.053004	9.251825	9.450696	9.649614	9.848575	11.84010	13.83407	15.82954	17.82603
0.43	8.879674	9.078446	9.277271	9.476145	9.675065	9.874029	11.86558	13.85955	15.85504	17.85153
0.44	8.904999	9.103774	9.302602	9.501480	9.700403	9.899369	11.89094	13.88492	15.88042	17.87692
0.45	8.930227	9.129006	9.327838	9.526718	9.725644	9.924613	11.91620	13.91020	15.90570	17.90221
0.46	8.955376	9.154159	9.352993	9.551876	9.750805	9.949777	11.94138	13.93539	15.93090	17.92741
0.47	8.980462	9.179247	9.378085	9.576971	9.775903	9.974877	11.96650	13.96053	15.95604	17.95256
0.48	9.005500	9.204289	9.403130	9.602019	9.800953	9.999930	11.99158	13.98561	15.98114	17.97766
0.49	9.030507	9.229300	9.428144	9.627036	9.825973	10.02495	12.01662	14.01066	16.00620	18.00272
0.50	9.055499	9.254296	9.453142	9.652037	9.850976	10.04996	12.04164	14.03570	16.03124	18.02777

R = R(P,d) where probability P = P(R,d)

P\d	9.00	9.20	9.40	9.60	9.80	10.0	12.0	14.0	16.0	18.0
0.50	9.055499	9.254295	9.453142	9.652037	9.850976	10.04996	12.04164	14.03570	16.03124	18.02777
0.51	9.080491	9.279290	9.478140	9.677038	9.875980	10.07497	12.06667	14.06074	16.05628	18.05282
0.52	9.105499	9.304301	9.503154	9.702055	9.901000	10.09999	12.09171	14.08579	16.08134	18.07789
0.53	9.130539	9.329344	9.528201	9.727104	9.926052	10.12504	12.11678	14.11087	16.10644	18.10298
0.54	9.155626	9.354435	9.553294	9.752201	9.951152	10.15014	12.14190	14.13601	16.13158	18.12813
0.55	9.180778	9.379590	9.578452	9.777361	9.976315	10.17531	12.16709	14.16120	16.15678	18.15334
0.56	9.206009	9.404825	9.603690	9.802602	10.00156	10.20056	12.19235	14.18648	16.18206	18.17862
0.57	9.231338	9.430157	9.629025	9.827940	10.02690	10.22590	12.21771	14.21185	16.20744	18.20401
0.58	9.256781	9.455603	9.654474	9.853392	10.05235	10.25136	12.24319	14.23734	16.23294	18.22951
0.59	9.282356	9.481181	9.680056	9.878976	10.07794	10.27695	12.26880	14.26296	16.25857	18.25514
0.60	9.308082	9.506910	9.705788	9.904711	10.10368	10.30269	12.29456	14.28873	16.28434	18.28092
0.61	9.333977	9.532809	9.731689	9.930615	10.12958	10.32859	12.32049	14.31467	16.31029	18.30688
0.62	9.360062	9.558897	9.757780	9.956709	10.15568	10.35469	12.34660	14.34080	16.33643	18.33302
0.63	9.386357	9.585195	9.784081	9.983013	10.18199	10.38100	12.37293	14.36714	16.36277	18.35937
0.64	9.412885	9.611726	9.810615	10.00955	10.20853	10.40755	12.39949	14.39371	16.38935	18.38596
0.65	9.439668	9.638513	9.837405	10.03634	10.23532	10.43434	12.42631	14.42054	16.41619	18.41280
0.66	9.466732	9.665580	9.864476	10.06342	10.26240	10.46142	12.45341	14.44765	16.44331	18.43992
0.67	9.494103	9.692954	9.891853	10.09080	10.28978	10.48881	12.48081	14.47506	16.47073	18.46735
0.68	9.521808	9.720663	9.919565	10.11851	10.31750	10.51653	12.50855	14.50282	16.49849	18.49512
0.69	9.549879	9.748737	9.947642	10.14659	10.34558	10.54461	12.53666	14.53093	16.52662	18.52325
0.70	9.578348	9.777209	9.976117	10.17507	10.37406	10.57310	12.56516	14.55945	16.55514	18.55177
0.71	9.607250	9.806114	10.00503	10.20398	10.40298	10.60201	12.59410	14.58840	16.58410	18.58074
0.72	9.636623	9.835491	10.03441	10.23336	10.43236	10.63140	12.62351	14.61782	16.61353	18.61017
0.73	9.666510	9.865381	10.06430	10.26326	10.46226	10.66130	12.65343	14.64775	16.64347	18.64012
0.74	9.696957	9.895832	10.09475	10.29372	10.49272	10.69177	12.68391	14.67825	16.67397	18.67063
0.75	9.728014	9.926892	10.12582	10.32478	10.52379	10.72284	12.71501	14.70936	16.70509	18.70175
0.76	9.759738	9.958620	10.15755	10.35652	10.55553	10.75458	12.74677	14.74113	16.73687	18.73354
0.77	9.792192	9.991078	10.19001	10.38898	10.58800	10.78705	12.77926	14.77364	16.76939	18.76606
0.78	9.825447	10.02434	10.22327	10.42225	10.62127	10.82032	12.81255	14.80694	16.80270	18.79939
0.79	9.859581	10.05847	10.25741	10.45639	10.65541	10.85447	12.84673	14.84113	16.83690	18.83359
0.80	9.894684	10.09358	10.29252	10.49151	10.69053	10.88959	12.88187	14.87629	16.87207	18.86876
0.81	9.930861	10.12976	10.32871	10.52770	10.72672	10.92579	12.91809	14.91252	16.90831	18.90501
0.82	9.968228	10.16713	10.36608	10.56507	10.76411	10.96317	12.95550	14.94995	16.94574	18.94245
0.83	10.00692	10.20583	10.40479	10.60378	10.80282	11.00189	12.99424	14.98870	16.98451	18.98123
0.84	10.04711	10.24602	10.44498	10.64398	10.84302	11.04209	13.03447	15.02895	17.02477	19.02149
0.85	10.08897	10.28789	10.48685	10.68586	10.88490	11.08398	13.07638	15.07087	17.06670	19.06343
0.86	10.13274	10.33166	10.53063	10.72964	10.92868	11.12777	13.12020	15.11471	17.11055	19.10729
0.87	10.17869	10.37762	10.57659	10.77560	10.97465	11.17374	13.16620	15.16073	17.15658	19.15333
0.88	10.22716	10.42609	10.62507	10.82409	11.02314	11.22223	13.21472	15.20927	17.20513	19.20189
0.89	10.27857	10.47751	10.67649	10.87551	11.07457	11.27366	13.26618	15.26075	17.25663	19.25339
0.90	10.33345	10.53239	10.73138	10.93040	11.12947	11.32857	13.32112	15.31571	17.31160	19.30838
0.91	10.39250	10.59145	10.79044	10.98947	11.18854	11.38764	13.38024	15.37485	17.37076	19.36754
0.92	10.45665	10.65561	10.85461	11.05364	11.25272	11.45183	13.44446	15.43909	17.43502	19.43181
0.93	10.52720	10.72616	10.92516	11.12421	11.32328	11.52240	13.51507	15.50973	17.50567	19.50248
0.94	10.60598	10.80495	11.00396	11.20301	11.40210	11.60122	13.59394	15.58863	17.58459	19.58141
0.95	10.69584	10.89482	11.09384	11.29289	11.49199	11.69111	13.68388	15.67861	17.67459	19.67143
0.96	10.80141	11.00040	11.19943	11.39850	11.59760	11.79673	13.78956	15.78433	17.78033	19.77719
0.97	10.93121	11.13021	11.32925	11.52833	11.72744	11.92658	13.91948	15.91429	17.91033	19.90721
0.98	11.10376	11.30277	11.50183	11.70092	11.90004	12.09920	14.09219	16.08706	18.08314	20.08005
0.99	11.37573	11.57477	11.77384	11.97296	12.17210	12.37128	14.36442	16.35938	18.35552	20.35247

R = R(P,d) where probability P = P(R,d)

P\d	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.0
0.01	17.70022	22.69464	27.69100	32.68843	37.68653	42.68506	47.68389	52.68294	57.68215	62.68149
0.02	17.97262	22.96712	27.96351	32.96097	37.95908	42.95762	47.95646	52.95552	57.95473	62.95407
0.03	18.14545	23.14000	28.13642	33.13389	38.13201	43.13056	48.12940	53.12846	58.12767	63.12701
0.04	18.27547	23.27005	28.26648	33.26397	38.26210	43.26065	48.25949	53.25855	58.25777	63.25711
0.05	18.38123	23.37583	28.37229	33.36978	38.36791	43.36647	48.36531	53.36438	58.36360	63.36294
0.06	18.47125	23.46587	28.46234	33.45984	38.45798	43.45653	48.45538	53.45445	58.45367	63.45301
0.07	18.55017	23.54482	28.54130	33.53880	38.53694	43.53551	48.53436	53.53342	58.53265	63.53199
0.08	18.62084	23.61551	28.61200	33.60951	38.60765	43.60622	48.60507	53.60414	58.60336	63.60270
0.09	18.68512	23.67980	28.67629	33.67381	38.67196	43.67052	48.66938	53.66845	58.66767	63.66702
0.10	18.74428	23.73898	28.73548	33.73300	38.73115	43.72972	48.72858	53.72765	58.72687	63.72622
0.11	18.79927	23.79398	28.79049	33.78801	38.78617	43.78474	48.78360	53.78267	58.78189	63.78124
0.12	18.85077	23.84550	28.84201	33.83954	38.83770	43.83627	48.83513	53.83420	58.83343	63.83278
0.13	18.89933	23.89407	28.89059	33.88813	38.88629	43.88486	48.88372	53.88279	58.88202	63.88137
0.14	18.94538	23.94012	28.93665	33.93419	38.93235	43.93093	48.92979	53.92886	58.92809	63.92744
0.15	18.98923	23.98399	28.98053	33.97807	38.97623	43.97481	48.97367	53.97274	58.97197	63.97132
0.16	19.03118	24.02595	29.02249	34.02003	39.01820	44.01678	49.01564	54.01472	59.01395	64.01329
0.17	19.07144	24.06622	29.06277	34.06032	39.05849	44.05706	49.05593	54.05501	59.05423	64.05358
0.18	19.11022	24.10501	29.10156	34.09911	39.09728	44.09586	49.09473	54.09380	59.09303	64.09238
0.19	19.14766	24.14246	29.13902	34.13657	39.13474	44.13332	49.13219	54.13127	59.13050	64.12985
0.20	19.18391	24.17872	29.17528	34.17284	39.17101	44.16959	49.16846	54.16754	59.16677	64.16612
0.21	19.21909	24.21391	29.21047	34.20803	39.20621	44.20479	49.20366	54.20274	59.20197	64.20132
0.22	19.25330	24.24812	29.24469	34.24225	39.24043	44.23901	49.23788	54.23696	59.23619	64.23554
0.23	19.28662	24.28145	29.27803	34.27559	39.27377	44.27236	49.27123	54.27031	59.26954	64.26889
0.24	19.31914	24.31398	29.31056	34.30813	39.30631	44.30490	49.30377	54.30285	59.30208	64.30143
0.25	19.35094	24.34578	29.34237	34.33993	39.33812	44.33670	49.33558	54.33466	59.33389	64.33324
0.26	19.38206	24.37691	29.37350	34.37107	39.36926	44.36785	49.36672	54.36580	59.36503	64.36439
0.27	19.41257	24.40743	29.40402	34.40160	39.39978	44.39837	49.39725	54.39633	59.39556	64.39492
0.28	19.44252	24.43739	29.43399	34.43156	39.42975	44.42834	49.42722	54.42630	59.42553	64.42489
0.29	19.47196	24.46684	29.46344	34.46101	39.45920	44.45779	49.45667	54.45575	59.45499	64.45434
0.30	19.50093	24.49581	29.49241	34.48999	39.48818	44.48678	49.48565	54.48473	59.48397	64.48332
0.31	19.52946	24.52435	29.52095	34.51854	39.51673	44.51532	49.51420	54.51328	59.51252	64.51187
0.32	19.55759	24.55249	29.54910	34.54668	39.54487	44.54347	49.54235	54.54143	59.54067	64.54002
0.33	19.58536	24.58026	29.57688	34.57446	39.57266	44.57125	49.57013	54.56921	59.56845	64.56781
0.34	19.61279	24.60770	29.60432	34.60191	39.60010	44.59870	49.59758	54.59666	59.59590	64.59525
0.35	19.63992	24.63483	29.63145	34.62904	39.62724	44.62584	49.62472	54.62380	59.62304	64.62239
0.36	19.66676	24.66168	29.65831	34.65590	39.65410	44.65270	49.65158	54.65066	59.64990	64.64925
0.37	19.69335	24.68828	29.68490	34.68250	39.68070	44.67930	49.67818	54.67726	59.67650	64.67586
0.38	19.71971	24.71464	29.71127	34.70887	39.70707	44.70567	49.70455	54.70364	59.70287	64.70223
0.39	19.74585	24.74079	29.73742	34.73502	39.73322	44.73183	49.73071	54.72979	59.72903	64.72839
0.40	19.77181	24.76675	29.76339	34.76099	39.75919	44.75779	49.75668	54.75576	59.75500	64.75436
0.41	19.79759	24.79254	29.78918	34.78679	39.78499	44.78359	49.78248	54.78156	59.78080	64.78016
0.42	19.82323	24.81819	29.81483	34.81243	39.81064	44.80924	49.80813	54.80721	59.80645	64.80581
0.43	19.84873	24.84369	29.84034	34.83795	39.83615	44.83476	49.83364	54.83273	59.83197	64.83133
0.44	19.87412	24.86909	29.86574	34.86335	39.86155	44.86016	49.85905	54.85813	59.85737	64.85673
0.45	19.89941	24.89439	29.89104	34.88865	39.88686	44.88546	49.88435	54.88344	59.88268	64.88204
0.46	19.92462	24.91960	29.91626	34.91387	39.91208	44.91069	49.90958	54.90867	59.90791	64.90726
0.47	19.94977	24.94476	29.94142	34.93903	39.93724	44.93585	49.93474	54.93383	59.93307	64.93243
0.48	19.97487	24.96986	29.96653	34.96414	39.96235	44.96096	49.95985	54.95894	59.95818	64.95754
0.49	19.99994	24.99494	29.99160	34.98922	39.98743	44.98604	49.98493	54.98402	59.98327	64.98262
0.50	20.02499	25.02000	30.01667	35.01428	40.01250	45.01111	50.01000	55.00909	60.00833	65.00769

R = R(P,d) where probability P = P(R,d)

P\d	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.0
0.50	20.02499	25.02000	30.01667	35.01428	40.01250	45.01111	50.01000	55.00909	60.00833	65.00769
0.51	20.05005	25.04506	30.04173	35.03935	40.03756	45.03618	50.03507	55.03416	60.03340	65.03276
0.52	20.07512	25.07013	30.06680	35.06443	40.06265	45.06126	50.06015	55.05924	60.05848	65.05784
0.53	20.10022	25.09524	30.09191	35.08954	40.08776	45.08637	50.08526	55.08435	60.08360	65.08296
0.54	20.12537	25.12039	30.11707	35.11470	40.11292	45.11153	50.11042	55.10952	60.10876	65.10812
0.55	20.15058	25.14561	30.14229	35.13992	40.13814	45.13676	50.13565	55.13474	60.13399	65.13335
0.56	20.17587	25.17091	30.16759	35.16522	40.16345	45.16206	50.16095	55.16005	60.15929	65.15865
0.57	20.20126	25.19630	30.19299	35.19062	40.18885	45.18746	50.18636	55.18545	60.18470	65.18406
0.58	20.22676	25.22181	30.21850	35.21614	40.21436	45.21298	50.21187	55.21097	60.21021	65.20957
0.59	20.25240	25.24745	30.24415	35.24178	40.24001	45.23863	50.23752	55.23662	60.23586	65.23522
0.60	20.27819	25.27324	30.26994	35.26758	40.26581	45.26443	50.26332	55.26242	60.26166	65.26102
0.61	20.30414	25.29921	30.29591	35.29355	40.29177	45.29040	50.28929	55.28839	60.28763	65.28699
0.62	20.33029	25.32536	30.32206	35.31970	40.31793	45.31655	50.31545	55.31455	60.31379	65.31315
0.63	20.35664	25.35172	30.34843	35.34607	40.34430	45.34292	50.34182	55.34092	60.34016	65.33953
0.64	20.38323	25.37831	30.37503	35.37267	40.37090	45.36953	50.36842	55.36752	60.36677	65.36613
0.65	20.41008	25.40517	30.40188	35.39953	40.39776	45.39638	50.39528	55.39438	60.39363	65.39299
0.66	20.43720	25.43230	30.42901	35.42666	40.42490	45.42352	50.42242	55.42152	60.42077	65.42013
0.67	20.46464	25.45974	30.45646	35.45411	40.45234	45.45097	50.44987	55.44897	60.44822	65.44758
0.68	20.49241	25.48751	30.48424	35.48189	40.48013	45.47875	50.47765	55.47675	60.47600	65.47536
0.69	20.52054	25.51565	30.51238	35.51003	40.50827	45.50690	50.50580	55.50490	60.50415	65.50351
0.70	20.54907	25.54419	30.54092	35.53858	40.53682	45.53545	50.53435	55.53345	60.53270	65.53206
0.71	20.57804	25.57316	30.56990	35.56756	40.56580	45.56443	50.56333	55.56243	60.56168	65.56104
0.72	20.60748	25.60261	30.59935	35.59701	40.59525	45.59388	50.59278	55.59188	60.59113	65.59050
0.73	20.63743	25.63257	30.62931	35.62697	40.62522	45.62385	50.62275	55.62185	60.62110	65.62047
0.74	20.66795	25.66309	30.65983	35.65750	40.65575	45.65438	50.65328	55.65238	60.65163	65.65100
0.75	20.69907	25.69422	30.69097	35.68864	40.68688	45.68552	50.68442	55.68353	60.68278	65.68214
0.76	20.73087	25.72602	30.72277	35.72045	40.71869	45.71733	50.71623	55.71534	60.71459	65.71395
0.77	20.76339	25.75855	30.75531	35.75298	40.75123	45.74987	50.74877	55.74788	60.74713	65.74650
0.78	20.79672	25.79189	30.78865	35.78632	40.78457	45.78321	50.78212	55.78122	60.78047	65.77984
0.79	20.83093	25.82610	30.82287	35.82054	40.81880	45.81743	50.81634	55.81545	60.81470	65.81407
0.80	20.86610	25.86129	30.85806	35.85574	40.85399	45.85263	50.85154	55.85064	60.84990	65.84926
0.81	20.90236	25.89755	30.89432	35.89200	40.89026	45.88890	50.88781	55.88692	60.88617	65.88554
0.82	20.93981	25.93501	30.93178	35.92947	40.92772	45.92636	50.92527	55.92438	60.92364	65.92300
0.83	20.97858	25.97379	30.97057	35.96826	40.96652	45.96516	50.96407	55.96318	60.96243	65.96180
0.84	21.01885	26.01407	31.01085	36.00854	41.00680	46.00545	51.00436	56.00347	61.00272	66.00209
0.85	21.06080	26.05603	31.05282	36.05051	41.04877	46.04742	51.04633	56.04544	61.04470	66.04406
0.86	21.10466	26.09990	31.09669	36.09439	41.09265	46.09130	51.09021	56.08932	61.08858	66.08795
0.87	21.15071	26.14595	31.14275	36.14045	41.13872	46.13737	51.13628	56.13539	61.13465	66.13402
0.88	21.19928	26.19453	31.19133	36.18904	41.18731	46.18595	51.18487	56.18398	61.18324	66.18261
0.89	21.25079	26.24605	31.24286	36.24057	41.23884	46.23749	51.23641	56.23552	61.23478	66.23415
0.90	21.30578	26.30105	31.29787	36.29558	41.29385	46.29251	51.29143	56.29054	61.28980	66.28917
0.91	21.36495	26.36023	31.35706	36.35477	41.35305	46.35170	51.35062	56.34974	61.34900	66.34837
0.92	21.42923	26.42453	31.42136	36.41908	41.41736	46.41601	51.41493	56.41405	61.41331	66.41268
0.93	21.49991	26.49522	31.49206	36.48978	41.48807	46.48672	51.48565	56.48476	61.48402	66.48340
0.94	21.57885	26.57417	31.57102	36.56875	41.56704	46.56570	51.56462	56.56374	61.56300	66.56238
0.95	21.66887	26.66422	31.66108	36.65881	41.65710	46.65577	51.65469	56.65381	61.65307	66.65245
0.96	21.77465	26.77001	31.76688	36.76463	41.76292	46.76159	51.76051	56.75964	61.75890	66.75828
0.97	21.90468	26.90007	31.89696	36.89471	41.89301	46.89168	51.89061	56.88973	61.88900	66.88838
0.98	22.07754	27.07297	32.06987	37.06763	42.06594	47.06461	52.06355	57.06267	62.06194	67.06132
0.99	22.34999	27.34547	32.34240	37.34018	42.33850	47.33718	52.33612	57.33525	62.33452	67.33391

R = R(P,d) where probability P = P(R,d)

P\d	70.0	75.0	80.0	85.0	90.0	95.0	100	105	110	115	120
0.01	67.68092	72.68042	77.67999	82.67962	87.67928	92.67898	97.67871	102.6785	107.6782	112.6780	117.6779
0.02	67.95350	72.95301	77.95258	82.95221	87.95187	92.95157	97.95130	102.9511	107.9508	112.9506	117.9505
0.03	68.12645	73.12596	78.12553	83.12515	88.12482	93.12452	98.12425	103.1240	108.1238	113.1236	118.1234
0.04	68.25655	73.25606	78.25563	83.25526	88.25492	93.25463	98.25436	103.2541	108.2539	113.2537	118.2535
0.05	68.36237	73.36189	78.36146	83.36109	88.36075	93.36046	98.36019	103.3599	108.3597	113.3595	118.3593
0.06	68.45245	73.45196	78.45154	83.45116	88.45083	93.45053	98.45027	103.4500	108.4498	113.4496	118.4494
0.07	68.53143	73.53094	78.53052	83.53014	88.52981	93.52951	98.52925	103.5290	108.5288	113.5286	118.5284
0.08	68.60214	73.60166	78.60123	83.60086	88.60053	93.60023	98.59996	103.5997	108.5995	113.5993	118.5991
0.09	68.66646	73.66597	78.66555	83.66517	88.66484	93.66455	98.66428	103.6640	108.6638	113.6636	118.6634
0.10	68.72566	73.72517	78.72475	83.72438	88.72404	93.72375	98.72348	103.7232	108.7230	113.7228	118.7226
0.11	68.78068	73.78019	78.77977	83.77940	88.77907	93.77877	98.77850	103.7781	108.7780	113.7778	118.7777
0.12	68.83222	73.83173	78.83131	83.83094	88.83061	93.83031	98.83004	103.8298	108.8296	113.8294	118.8292
0.13	68.88081	73.88033	78.87990	83.87953	88.87920	93.87890	98.87864	103.8784	108.8782	113.8780	118.8778
0.14	68.92688	73.92640	78.92597	83.92560	88.92527	93.92497	98.92471	103.9245	108.9242	113.9240	118.9239
0.15	68.97076	73.97028	78.96986	83.96949	88.96915	93.96886	98.96859	103.9684	108.9681	113.9679	118.9678
0.16	69.01274	74.01225	79.01183	84.01146	89.01113	94.01083	99.01057	104.0103	109.0101	114.0099	119.0097
0.17	69.05303	74.05254	79.05212	84.05175	89.05142	94.05112	99.05086	104.0506	109.0504	114.0502	119.0500
0.18	69.09182	74.09134	79.09092	84.09055	89.09022	94.08992	99.08966	104.0894	109.0892	114.0890	119.0888
0.19	69.12929	74.12881	79.12839	84.12802	89.12769	94.12739	99.12713	104.1269	109.1267	114.1265	119.1263
0.20	69.16556	74.16508	79.16466	84.16429	89.16396	94.16367	99.16340	104.1632	109.1629	114.1627	119.1626
0.21	69.20076	74.20028	79.19986	84.19949	89.19916	94.19886	99.19860	104.1984	109.1981	114.1979	119.1978
0.22	69.23499	74.23451	79.23409	84.23372	89.23339	94.23309	99.23283	104.2326	109.2324	114.2322	119.2320
0.23	69.26833	74.26785	79.26743	84.26706	89.26673	94.26644	99.26617	104.2659	109.2657	114.2655	119.2653
0.24	69.30088	74.30040	79.29998	84.29960	89.29927	94.29898	99.29872	104.2985	109.2983	114.2981	119.2979
0.25	69.33269	74.33221	79.33179	84.33142	89.33109	94.33079	99.33053	104.3303	109.3301	114.3299	119.3297
0.26	69.36383	74.36335	79.36293	84.36256	89.36223	94.36194	99.36167	104.3614	109.3612	114.3610	119.3608
0.27	69.39436	74.39388	79.39346	84.39309	89.39276	94.39247	99.39220	104.3920	109.3917	114.3915	119.3914
0.28	69.42433	74.42385	79.42343	84.42306	89.42273	94.42244	99.42217	104.4219	109.4217	114.4215	119.4213
0.29	69.45379	74.45331	79.45289	84.45252	89.45219	94.45189	99.45163	104.4514	109.4512	114.4510	119.4508
0.30	69.48277	74.48229	79.48187	84.48150	89.48117	94.48088	99.48061	104.4804	109.4802	114.4800	119.4798
0.31	69.51132	74.51084	79.51042	84.51005	89.50972	94.50943	99.50916	104.5089	109.5087	114.5085	119.5083
0.32	69.53947	74.53899	79.53857	84.53820	89.53787	94.53758	99.53731	104.5371	109.5369	114.5367	119.5365
0.33	69.56725	74.56677	79.56635	84.56598	89.56566	94.56536	99.56510	104.5649	109.5646	114.5644	119.5643
0.34	69.59470	74.59422	79.59380	84.59343	89.59311	94.59281	99.59255	104.5923	109.5921	114.5919	119.5917
0.35	69.62184	74.62136	79.62094	84.62058	89.62025	94.61995	99.61969	104.6195	109.6192	114.6190	119.6189
0.36	69.64870	74.64822	79.64781	84.64744	89.64711	94.64681	99.64655	104.6463	109.6461	114.6459	119.6457
0.37	69.67531	74.67483	79.67441	84.67404	89.67371	94.67342	99.67315	104.6729	109.6727	114.6725	119.6723
0.38	69.70168	74.70120	79.70078	84.70041	89.70008	94.69979	99.69953	104.6993	109.6991	114.6989	119.6987
0.39	69.72784	74.72736	79.72694	84.72657	89.72625	94.72595	99.72569	104.7254	109.7252	114.7250	119.7249
0.40	69.75381	74.75333	79.75291	84.75254	89.75222	94.75192	99.75166	104.7514	109.7512	114.7510	119.7508
0.41	69.77961	74.77913	79.77871	84.77835	89.77802	94.77772	99.77746	104.7772	109.7770	114.7768	119.7766
0.42	69.80526	74.80478	79.80436	84.80400	89.80367	94.80338	99.80311	104.8029	109.8027	114.8025	119.8023
0.43	69.83078	74.83030	79.82988	84.82951	89.82919	94.82889	99.82863	104.8284	109.8282	114.8280	119.8278
0.44	69.85618	74.85570	79.85529	84.85492	89.85459	94.85430	99.85403	104.8538	109.8536	114.8534	119.8532
0.45	69.88149	74.88101	79.88059	84.88023	89.87990	94.87961	99.87934	104.8791	109.8789	114.8787	119.8785
0.46	69.90671	74.90624	79.90582	84.90545	89.90512	94.90483	99.90457	104.9043	109.9041	114.9039	119.9037
0.47	69.93188	74.93140	79.93098	84.93062	89.93029	94.93000	99.92973	104.9295	109.9293	114.9291	119.9289
0.48	69.95699	74.95652	79.95610	84.95573	89.95540	94.95511	99.95485	104.9546	109.9544	114.9542	119.9540
0.49	69.98208	74.98160	79.98118	84.98081	89.98049	94.98019	99.97993	104.9797	109.9795	114.9793	119.9791
0.50	70.00714	75.00667	80.00625	85.00588	90.00556	95.00526	100.0050	105.0048	110.0045	115.0043	120.0042

R = R(P,d) where probability P = P(R,d)

P\d	70.0	75.0	80.0	85.0	90.0	95.0	100	105	110	115	120
0.50	70.00714	75.00667	80.00625	85.00588	90.00556	95.00526	100.0050	105.0048	110.0045	115.0043	120.0042
0.51	70.03221	75.03173	80.03132	85.03096	90.03062	95.03033	100.0301	105.0298	110.0296	115.0294	120.0292
0.52	70.05729	75.05682	80.05640	85.05603	90.05571	95.05542	100.0552	105.0549	110.0547	115.0545	120.0543
0.53	70.08241	75.08193	80.08152	85.08115	90.08082	95.08053	100.0803	105.0800	110.0798	115.0796	120.0794
0.54	70.10757	75.10710	80.10668	85.10631	90.10599	95.10569	100.1054	105.1052	110.1050	115.1048	120.1046
0.55	70.13280	75.13232	80.13191	85.13154	90.13121	95.13092	100.1307	105.1304	110.1302	115.1300	120.1298
0.56	70.15810	75.15763	80.15721	85.15685	90.15652	95.15623	100.1560	105.1557	110.1555	115.1553	120.1551
0.57	70.18351	75.18303	80.18262	85.18225	90.18192	95.18163	100.1814	105.1811	110.1809	115.1807	120.1805
0.58	70.20903	75.20855	80.20814	85.20777	90.20744	95.20715	100.2069	105.2067	110.2064	115.2062	120.2061
0.59	70.23468	75.23420	80.23379	85.23342	90.23309	95.23280	100.2325	105.2323	110.2321	115.2319	120.2317
0.60	70.26048	75.26000	80.25959	85.25922	90.25889	95.25860	100.2583	105.2581	110.2579	115.2577	120.2575
0.61	70.28645	75.28597	80.28556	85.28519	90.28487	95.28457	100.2843	105.2841	110.2839	115.2837	120.2835
0.62	70.31261	75.31213	80.31172	85.31135	90.31103	95.31074	100.3105	105.3102	110.3100	115.3098	120.3096
0.63	70.33898	75.33851	80.33809	85.33772	90.33740	95.33711	100.3368	105.3366	110.3364	115.3362	120.3360
0.64	70.36558	75.36511	80.36469	85.36433	90.36400	95.36371	100.3634	105.3632	110.3630	115.3628	120.3626
0.65	70.39244	75.39197	80.39156	85.39119	90.39086	95.39057	100.3903	105.3901	110.3899	115.3897	120.3895
0.66	70.41958	75.41911	80.41870	85.41833	90.41801	95.41771	100.4175	105.4172	110.4170	115.4168	120.4166
0.67	70.44703	75.44656	80.44615	85.44578	90.44546	95.44516	100.4449	105.4447	110.4444	115.4443	120.4441
0.68	70.47482	75.47434	80.47393	85.47356	90.47324	95.47295	100.4727	105.4725	110.4722	115.4720	120.4719
0.69	70.50297	75.50249	80.50208	85.50172	90.50139	95.50110	100.5008	105.5006	110.5004	115.5002	120.5000
0.70	70.53152	75.53104	80.53063	85.53024	90.52994	95.52965	100.5294	105.5292	110.5289	115.5287	120.5286
0.71	70.56050	75.56003	80.55961	85.55925	90.55892	95.55863	100.5584	105.5581	110.5579	115.5577	120.5575
0.72	70.58995	75.58948	80.58907	85.58870	90.58838	95.58809	100.5878	105.5876	110.5874	115.5872	120.5870
0.73	70.61992	75.61945	80.61904	85.61867	90.61835	95.61806	100.6178	105.6176	110.6173	115.6171	120.6170
0.74	70.65046	75.64998	80.64957	85.64921	90.64888	95.64859	100.6483	105.6481	110.6479	115.6477	120.6475
0.75	70.68160	75.68113	80.68071	85.68035	90.68002	95.67973	100.6795	105.6792	110.6790	115.6788	120.6786
0.76	70.71341	75.71294	80.71253	85.71216	90.71184	95.71155	100.7113	105.7110	110.7108	115.7106	120.7105
0.77	70.74595	75.74548	80.74507	85.74470	90.74438	95.74409	100.7438	105.7436	110.7434	115.7432	120.7430
0.78	70.77930	75.77883	80.77841	85.77805	90.77773	95.77744	100.7772	105.7769	110.7767	115.7765	120.7763
0.79	70.81352	75.81305	80.81264	85.81228	90.81195	95.81166	100.8114	105.8112	110.8110	115.8108	120.8106
0.80	70.84872	75.84825	80.84784	85.84747	90.84715	95.84686	100.8466	105.8464	110.8461	115.8460	120.8458
0.81	70.88499	75.88452	80.88411	85.88375	90.88342	95.88314	100.8829	105.8826	110.8824	115.8822	120.8820
0.82	70.92246	75.92199	80.92158	85.92122	90.92089	95.92060	100.9203	105.9201	110.9199	115.9197	120.9195
0.83	70.96126	75.96079	80.96038	85.96001	90.95969	95.95940	100.9591	105.9589	110.9587	115.9585	120.9583
0.84	71.00155	76.00108	81.00067	86.00031	90.99998	95.99969	100.9994	105.9992	110.9990	115.9988	120.9986
0.85	71.04352	76.04305	81.04264	86.04228	91.04196	96.04167	101.0414	106.0412	111.0410	116.0408	121.0406
0.86	71.08741	76.08694	81.08653	86.08616	91.08584	96.08555	101.0853	106.0851	111.0848	116.0846	121.0845
0.87	71.13348	76.13301	81.13260	86.13223	91.13191	96.13162	101.1314	106.1311	111.1309	116.1307	121.1305
0.88	71.18207	76.18160	81.18119	86.18082	91.18051	96.18022	101.1800	106.1797	111.1795	116.1793	121.1791
0.89	71.23361	76.23314	81.23273	86.23237	91.23205	96.23176	101.2315	106.2313	111.2310	116.2309	121.2307
0.90	71.28863	76.28816	81.28775	86.28739	91.28707	96.28678	101.2865	106.2863	111.2861	116.2859	121.2857
0.91	71.34783	76.34736	81.34695	86.34659	91.34627	96.34598	101.3457	106.3455	111.3453	116.3451	121.3449
0.92	71.41214	76.41168	81.41127	86.41091	91.41058	96.41030	101.4100	106.4098	111.4096	116.4094	121.4092
0.93	71.48286	76.48239	81.48198	86.48162	91.48130	96.48101	101.4808	106.4805	111.4803	116.4801	121.4799
0.94	71.56184	76.56137	81.56096	86.56060	91.56028	96.55999	101.5597	106.5595	111.5593	116.5591	121.5589
0.95	71.65191	76.65145	81.65104	86.65068	91.65036	96.65007	101.6498	106.6496	111.6494	116.6492	121.6490
0.96	71.75774	76.75728	81.75687	86.75651	91.75619	96.75590	101.7556	106.7554	111.7552	116.7550	121.7548
0.97	71.88784	76.88738	81.88697	86.88661	91.88629	96.88601	101.8857	106.8855	111.8853	116.8851	121.8849
0.98	72.06079	77.06033	82.05992	87.05956	92.05924	97.05896	102.0587	107.0585	112.0583	117.0581	122.0579
0.99	72.33337	77.33291	82.33251	87.33215	92.33183	97.33155	102.3313	107.3311	112.3308	117.3307	122.3305

R = R(P,d) where probability P = P(R,d)

P\d	0.00	0.05	0.10	0.25	0.50	0.75	1.00	1.50	2.00	3.00
0.990000	3.034854	3.036749	3.042407	3.080986	3.205999	3.381680	3.584494	4.026818	4.491533	5.449368
0.990500	3.051709	3.053614	3.059303	3.098079	3.223588	3.399701	3.602800	4.045434	4.510311	5.468312
0.991000	3.069375	3.071291	3.077013	3.115995	3.242021	3.418582	3.621977	4.064931	4.529976	5.488150
0.991500	3.087941	3.089868	3.095624	3.134824	3.261390	3.438418	3.642119	4.085406	4.550627	5.508979
0.992000	3.107511	3.109451	3.115243	3.154671	3.281803	3.459318	3.663338	4.106971	4.572375	5.530914
0.992500	3.128211	3.130164	3.135994	3.175662	3.303391	3.481415	3.685768	4.129762	4.595356	5.554091
0.993000	3.150189	3.152155	3.158026	3.197949	3.326307	3.504866	3.709566	4.153938	4.619733	5.578674
0.993500	3.173627	3.175608	3.181521	3.221716	3.350740	3.529862	3.734928	4.179697	4.645702	5.604860
0.994000	3.198748	3.200745	3.206704	3.247191	3.376924	3.556641	3.762092	4.207280	4.673508	5.632895
0.994500	3.225835	3.227849	3.233858	3.274657	3.405149	3.585500	3.791358	4.236990	4.703455	5.663087
0.995000	3.255247	3.257279	3.263342	3.304480	3.435790	3.616817	3.823110	4.269216	4.735933	5.695826
0.995500	3.287454	3.289506	3.295628	3.337136	3.469334	3.651089	3.857848	4.304462	4.771452	5.731628
0.996000	3.323089	3.325163	3.331350	3.373267	3.506437	3.688984	3.896247	4.343412	4.810697	5.771180
0.996500	3.363032	3.365131	3.371391	3.413764	3.548013	3.731428	3.939242	4.387010	4.854620	5.815441
0.997000	3.408561	3.410688	3.417031	3.459922	3.595385	3.779768	3.988194	4.436631	4.904602	5.865801
0.997500	3.461637	3.463797	3.470237	3.513730	3.650588	3.836070	4.045185	4.494379	4.962761	5.924391
0.998000	3.525509	3.527709	3.534266	3.578480	3.716987	3.903750	4.113666	4.563740	5.032601	5.994736
0.998500	3.606186	3.608436	3.615140	3.660258	3.800806	3.989126	4.200008	4.651149	5.120593	6.083345
0.999000	3.716922	3.719241	3.726147	3.772495	3.915765	4.106117	4.318250	4.770776	5.240984	6.204548
0.999100	3.745161	3.747497	3.754454	3.801115	3.945065	4.135916	4.348354	4.801221	5.271617	6.235382
0.999200	3.776480	3.778835	3.785849	3.832855	3.977552	4.168948	4.381720	4.834958	5.305560	6.269545
0.999300	3.811674	3.814052	3.821130	3.868522	4.014051	4.206049	4.419188	4.872836	5.343665	6.307894
0.999400	3.851904	3.854306	3.861457	3.909289	4.055758	4.248431	4.461982	4.916088	5.387173	6.351677
0.999500	3.898949	3.901381	3.908617	3.956962	4.104516	4.297960	4.511980	4.966611	5.437989	6.402807
0.999600	3.955767	3.958234	3.965573	4.014534	4.163377	4.357730	4.572299	5.027547	5.499270	6.464461
0.999700	4.027835	4.030347	4.037816	4.087555	4.238002	4.433468	4.648709	5.104714	5.576863	6.542515
0.999800	4.127273	4.129847	4.137496	4.188297	4.340901	4.537839	4.753966	5.210972	5.683686	6.649952
0.999900	4.291932	4.294608	4.302554	4.355092	4.511127	4.710347	4.927840	5.386401	5.860000	6.827233
0.999910	4.316411	4.319102	4.327091	4.379886	4.536416	4.735960	4.953647	5.412429	5.886153	6.853526
0.999920	4.343612	4.346320	4.354359	4.407437	4.564513	4.764412	4.982311	5.441336	5.915199	6.882724
0.999930	4.374246	4.376973	4.385067	4.438464	4.596150	4.796443	5.014577	5.473872	5.947890	6.915585
0.999940	4.409346	4.412094	4.420251	4.474012	4.632389	4.833127	5.051527	5.511126	5.985319	6.953207
0.999950	4.450503	4.453277	4.461507	4.515693	4.674872	4.876122	5.094827	5.554777	6.029171	6.997282
0.999960	4.500362	4.503167	4.511487	4.566185	4.726322	4.928179	5.147245	5.607512	6.082246	7.050622
0.999970	4.563839	4.566683	4.575117	4.630463	4.791797	4.994407	5.213921	5.674805	6.149738	7.118446
0.999980	4.651834	4.654732	4.663323	4.719561	4.882518	5.086134	5.306247	5.767825	6.243160	7.212315
0.999990	4.798526	4.801515	4.810368	4.868073	5.033640	5.238845	5.459903	5.922582	6.398559	7.368429
0.999991	4.820433	4.823436	4.832327	4.890250	5.056196	5.261630	5.482823	5.945662	6.421731	7.391705
0.999992	4.844805	4.847823	4.856758	4.914922	5.081288	5.286973	5.508316	5.971329	6.447500	7.417589
0.999993	4.872289	4.875324	4.884308	4.942743	5.109578	5.315543	5.537053	6.000261	6.476547	7.446764
0.999994	4.903825	4.906880	4.915920	4.974664	5.142033	5.348315	5.570014	6.033444	6.509859	7.480222
0.999995	4.940865	4.943942	4.953048	5.012155	5.180144	5.386793	5.608710	6.072397	6.548962	7.519495
0.999996	4.985823	4.988928	4.998114	5.057660	5.226392	5.433478	5.655655	6.119648	6.596394	7.567129
0.999997	5.043193	5.046334	5.055621	5.115723	5.285389	5.493021	5.715523	6.179899	6.656870	7.627859
0.999998	5.122961	5.126151	5.135579	5.196449	5.367386	5.575754	5.798695	6.263589	6.740866	7.712202
0.999999	5.254622	5.259794	5.269458	5.331598	5.504595	5.714141	5.937784	6.403513	6.881283	7.853179

R = R(P d) where probability P = P(R,d)

P\d	4.00	5.00	6.00	8.00	10.0	20.0	30.0	50.0	80.0	120
0.990000	6.424667	7.408327	8.396685	10.38117	12.37128	22.34999	32.34240	52.33612	82.33251	122.3305
0.990500	6.443691	7.427397	8.415783	10.40030	12.39042	22.36917	32.36158	52.35530	82.35169	122.3497
0.991000	6.463613	7.447366	8.435781	10.42033	12.41047	22.38924	32.38166	52.37539	82.37178	122.3697
0.991500	6.484529	7.468332	8.456778	10.44136	12.43152	22.41032	32.40274	52.39648	82.39287	122.3908
0.992000	6.506556	7.490410	8.478889	10.46351	12.45369	22.43252	32.42495	52.41868	82.41507	122.4130
0.992500	6.529828	7.513737	8.502250	10.48691	12.47711	22.45597	32.44840	52.44214	82.43854	122.4365
0.993000	6.554511	7.538477	8.527026	10.51172	12.50195	22.48084	32.47328	52.46703	82.46342	122.4614
0.993500	6.580804	7.564831	8.553417	10.53816	12.52840	22.50733	32.49978	52.49353	82.48992	122.4879
0.994000	6.608952	7.593043	8.581670	10.56646	12.55673	22.53569	32.52815	52.52190	82.51830	122.5163
0.994500	6.639264	7.623423	8.612093	10.59693	12.58722	22.56623	32.55870	52.55245	82.54885	122.5468
0.995000	6.672133	7.656366	8.645082	10.62997	12.62029	22.59934	32.59182	52.58558	82.58198	122.5800
0.995500	6.708074	7.692387	8.681153	10.66610	12.65645	22.63555	32.62803	52.62180	82.61820	122.6162
0.996000	6.747778	7.732179	8.721000	10.70601	12.69640	22.67554	32.66804	52.66181	82.65822	122.6562
0.996500	6.792207	7.776705	8.765586	10.75066	12.74109	22.72029	32.71280	52.70658	82.70299	122.7010
0.997000	6.842756	7.827361	8.816312	10.80147	12.79193	22.77120	32.76373	52.75752	82.75393	122.7519
0.997500	6.901561	7.886291	8.875319	10.86057	12.85108	22.83042	32.82296	52.81676	82.81318	122.8112
0.998000	6.972159	7.957035	8.946157	10.93151	12.92208	22.90151	32.89408	52.88788	82.88430	122.8823
0.998500	7.061079	8.046135	9.035372	11.02086	13.01150	22.99104	32.98363	52.97745	82.97387	122.9719
0.999000	7.182694	8.167991	9.157380	11.14304	13.13378	23.11348	33.10609	53.09994	83.09636	123.0943
0.999100	7.213630	8.198987	9.188414	11.17412	13.16488	23.14462	33.13724	53.13109	83.12752	123.1255
0.999200	7.247905	8.233328	9.222797	11.20855	13.19934	23.17912	33.17175	53.16560	83.16204	123.1600
0.999300	7.286379	8.271875	9.261391	11.24720	13.23802	23.21784	33.21049	53.20434	83.20078	123.1988
0.999400	7.330302	8.315880	9.305449	11.29132	13.28217	23.26205	33.25471	53.24857	83.24501	123.2430
0.999500	7.381595	8.367268	9.356898	11.34284	13.33373	23.31367	33.30634	53.30021	83.29665	123.2946
0.999600	7.443440	8.429227	9.418930	11.40496	13.39589	23.37590	33.36859	53.36247	83.35892	123.3569
0.999700	7.521732	8.507659	9.497453	11.48359	13.47458	23.45468	33.44739	53.44129	83.43773	123.4357
0.999800	7.629488	8.615604	9.605520	11.59180	13.58287	23.56310	33.55584	53.54975	83.54620	123.5442
0.999900	7.807274	8.793692	9.783802	11.77031	13.76151	23.74194	33.73473	53.72866	83.72513	123.7231
0.999910	7.833639	8.820101	9.810239	11.79678	13.78800	23.76846	33.76125	53.75519	83.75166	123.7497
0.999920	7.862918	8.849428	9.839598	11.82618	13.81741	23.79791	33.79071	53.78465	83.78112	123.7791
0.999930	7.895868	8.882431	9.872636	11.85926	13.85051	23.83105	33.82386	53.81781	83.81427	123.8123
0.999940	7.933592	8.920215	9.910460	11.89713	13.88841	23.86899	33.86181	53.85576	83.85223	123.8502
0.999950	7.977784	8.964479	9.954770	11.94149	13.93281	23.91343	33.90626	53.90022	83.89669	123.8947
0.999960	8.031265	9.018044	10.00839	11.99518	13.98653	23.96721	33.96006	53.95402	83.95050	123.9485
0.999970	8.099264	9.086149	10.07656	12.06343	14.05483	24.03559	34.02845	54.02243	84.01891	124.0169
0.999980	8.193371	9.180400	10.17091	12.15789	14.14935	24.13021	34.12310	54.11709	84.11357	124.1116
0.999990	8.349868	9.337129	10.32779	12.31496	14.30652	24.28755	34.28047	54.27449	84.27098	124.2690
0.999991	8.373200	9.360495	10.35118	12.33837	14.32995	24.31100	34.30393	54.29795	84.29444	124.2925
0.999992	8.399146	9.386478	10.37719	12.36441	14.35600	24.33709	34.33002	54.32404	84.32054	124.3185
0.999993	8.428389	9.415764	10.40650	12.39376	14.38537	24.36648	34.35943	54.35345	84.34995	124.3480
0.999994	8.461926	9.449348	10.44012	12.42741	14.41904	24.40019	34.39314	54.38717	84.38367	124.3817
0.999995	8.501290	9.488767	10.47957	12.46691	14.45857	24.43976	34.43272	54.42676	84.42326	124.4213
0.999996	8.549033	9.536578	10.52743	12.51482	14.50650	24.48775	34.48072	54.47476	84.47127	124.4693
0.999997	8.609901	9.597530	10.58843	12.57589	14.56762	24.54892	34.54191	54.53596	84.53247	124.5305
0.999998	8.694431	9.682175	10.67316	12.66071	14.65248	24.63388	34.62688	54.62095	84.61746	124.6155
0.999999	8.835714	9.823646	10.81475	12.80245	14.79431	24.77585	34.76889	54.76298	84.75950	124.7575

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This paper describes an efficient method for the numerical evaluation by a high speed digital computer of: the integral of an uncorrected elliptical Gaussian distribution over a circle centered at the mean of the distribution, V(K,c); the integral of a circular Gaussian distribution over a circle offset from the mean of the distribution, P(R,d). The methods are programmed for both the NORC and the IBM 7090. Two extensive inverse tables are given, K(V,c) and R(P,d).

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2. Integrals
I. DiDonato, A. R.
II. Jarnagin, M. P.
III. Title
IV. NORC
V. IBM 7090

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